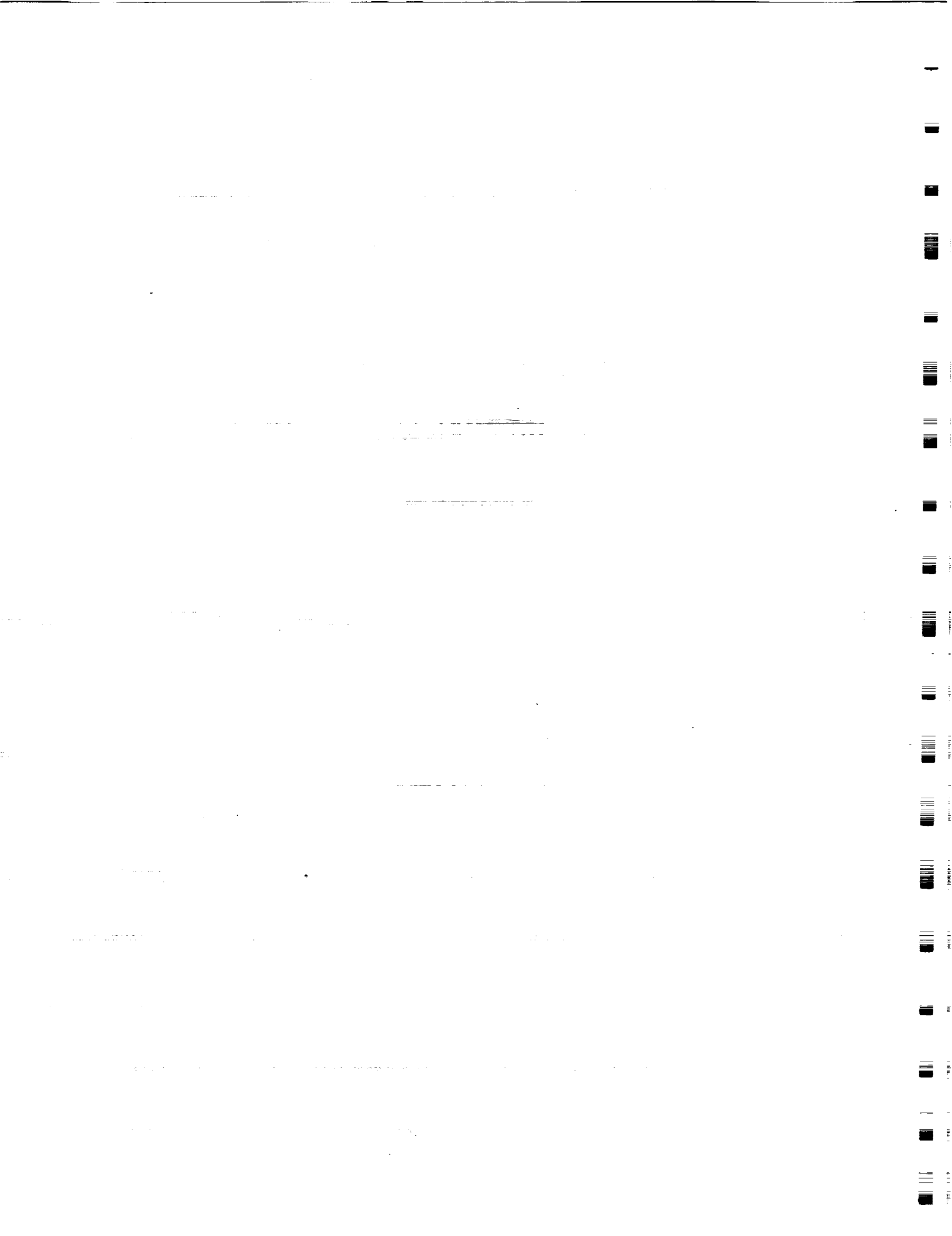


# **INDEPENDENT ORBITER ASSESSMENT**

## **ASSESSMENT OF THE HYDRAULICS/ WATER SPRAY BOILER SUBSYSTEM**

**2 MARCH 1988**



MCDONNELL DOUGLAS ASTRONAUTICS COMPANY  
ENGINEERING SERVICES

SPACE TRANSPORTATION SYSTEM ENGINEERING AND OPERATIONS SUPPORT

WORKING PAPER NO. 1.0-WP-VA88003-31

INDEPENDENT ORBITER ASSESSMENT  
ASSESSMENT OF THE HYDRAULICS/WATER SPRAY BOILER  
SUBSYSTEM FMEA/CIL

26 February 1988

This Working Paper is Submitted to NASA under  
Task Order No. VA88003, Contract NAS 9-17650

PREPARED BY: M. C. Bynum  
M. C. Bynum  
Analyst  
Independent Orbiter  
Assessment

PREPARED BY: William E. Parkman  
W. E. Parkman  
HYD Lead Analyst  
Independent Orbiter  
Assessment

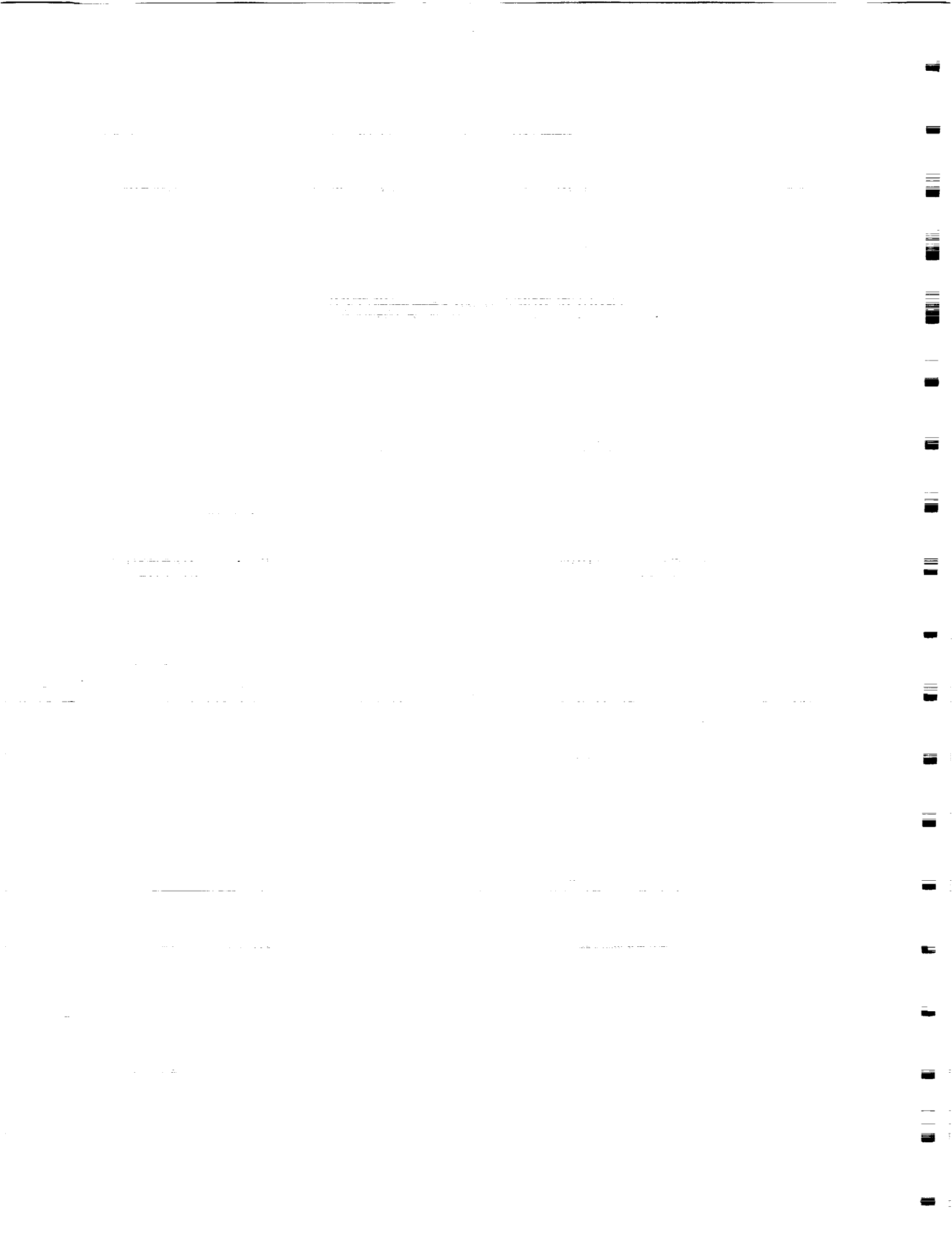
PREPARED BY: J. D. Duval  
J. D. Duval  
WSB Lead Analyst  
Independent Orbiter  
Assessment

PREPARED BY: W. R. Davidson  
W. R. Davidson  
HYD/WSB Subsystem Lead  
Independent Orbiter  
Assessment

APPROVED BY: A. J. Marino  
A. J. Marino  
Section Mgr. - FMEA/CIL  
Independent Orbiter  
Assessment

APPROVED BY: G. W. Knori  
G. W. Knori  
Technical Manager  
Independent Orbiter  
Assessment

APPROVED BY: G. L. Hornback  
G. L. Hornback  
Project Manager  
STSEOS





## CONTENTS

	Page
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	3
2.1 Purpose	3
2.2 Scope	3
2.3 Analysis Approach	3
2.4 Ground Rules and Assumptions	4
3.0 SUBSYSTEM DESCRIPTION	5
3.1 Design and Function	5
3.2 Interfaces and Locations	9
3.3 Hierarchy	12
4.0 ASSESSMENT RESULTS	33
4.1 Assessment Results - Water Spray Boiler	35
4.2 Assessment Results - EPD&C Water Spray Boiler	35
4.3 Assessment Results - Hydraulics System	35
4.4 Assessment Results - EPD&C Hydraulics	35
5.0 REFERENCES	36
APPENDIX A ACRONYMS	A-1
APPENDIX B DEFINITIONS, GROUND RULES, AND ASSUMPTIONS	B-1
B.1 Definitions	B-2
B.2 Project Level Ground Rules and Assumptions	B-4
B.3 Subsystem Specific Ground Rules and Assumptions	B-6
APPENDIX C ASSESSMENT WORKSHEETS	C-1
APPENDIX D CRITICAL ITEMS	D-1
APPENDIX E ANALYSIS WORKSHEETS	E-1
APPENDIX F NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS	F-1

## List of Figures

	Page
Figure 1 - HYDRAULICS/WATER SPRAY BOILER FMEA/CIL ASSESSMENT	2
Figure 2 - HYDRAULICS/WATER SPRAY BOILER DIAGRAM	6
Figure 3 - EPD&C - WATER SPRAY BOILER DIAGRAM	7
Figure 4 - EPD&C - HYDRAULICS DIAGRAM	10
Figure 5 - HYDRAULICS AND WATER SPRAY BOILER COMPONENT LOCATIONS	11
Figure 6 - HYDRAULICS/WATER SPRAY BOILER ANALYSIS HIERARCHY	13
Figure 7 - WATER SPRAY BOILER	14
Figure 8 - BOILER ASSEMBLY	15
Figure 9 - WATER TANK ASSEMBLY	16
Figure 10 - GN2 SYSTEM	17
Figure 11 - HYDRAULIC BYPASS/RELIEF VALVE	18
Figure 12 - EPD&C WATER SPRAY BOILER	19
Figure 13 - WSB CONTROLLERS	20
Figure 14 - HYDRAULIC SYSTEM	21
Figure 15 - ACCUMULATOR ASSEMBLY	22
Figure 16 - SSME HYDRAULIC ACCUMULATOR ASSEMBLY	23
Figure 17 - CIRCULATION PUMP ASSEMBLY	24
Figure 18 - HYDRAULIC DISTRIBUTION, MONITOR AND CONTROL	25
Figure 19 - MAIN PUMP ASSEMBLY	26
Figure 20 - RESERVOIR ASSEMBLY	27
Figure 21 - ET. UMBILICAL RETRACT ACTUATOR ASSEMBLY	28
Figure 22 - DRAIN SYSTEM	29
Figure 23 - FILTER MODULE	30
Figure 24 - FREON HEAT EXCHANGER	31
Figure 25 - EPD&C - HYDRAULICS	32

## List of Tables

	Page
Table I - SUMMARY OF IOA FMEA ASSESSMENT	33
Table II - SUMMARY OF IOA CIL ASSESSMENT	33
Table III- SUMMARY OF IOA RECOMMENDED FAILURE CRITICALITIES	34
Table IV - SUMMARY OF IOA RECOMMENDED CRITICAL ITEMS	34
Table V - IOA WORKSHEET NUMBERS	35

Independent Orbiter Assessment  
Assessment of the Hydraulics/Water Spray Boiler Subsystem FMEA/CIL

## 1.0 EXECUTIVE SUMMARY

The McDonnell Douglas Astronautics Company (MDAC) was selected in June 1986 to perform an Independent Orbiter Assessment (IOA) of the Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL). Direction was given by the STS Orbiter and GFE Projects Office to perform the hardware analysis using the instructions and ground rules defined in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986.

The IOA effort first completed an analysis of the Hydraulics/Water Spray Boiler (HYD/WSB) hardware, generating draft failure modes and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. The IOA results were then compared to the NASA FMEA/CIL baseline with proposed Post 51-L updates included. A resolution of each discrepancy from the comparison is provided through additional analysis as required. This report documents the results of that comparison for the Orbiter HYD/WSB hardware.

The IOA product for the HYD/WSB analysis consisted of 447 failure mode "worksheets" that resulted in 183 potential critical items being identified. Comparison was made to the NASA baseline (as of 19 November 1986) which consisted of 364 FMEAs and 111 CIL items. The comparison determined if there were any results which had been found by the IOA but were not in the NASA baseline. This comparison produced agreement on all but 68 FMEAs which caused differences in 23 CIL items. Figure 1 presents a comparison of the proposed Post 51-L NASA baseline, with the IOA recommended baseline, and any issues.

The issues arose due to differences between the NASA and IOA FMEA/CIL preparation instructions. NASA had used an older groundrules document which has since been superseded by the NSTS 22206 used by the IOA. After comparison, there were no discrepancies found that were not already identified by NASA, and the remaining issues may be attributed to differences in ground rules.

# HYDRAULICS/WATER SPRAY BOILER ASSESSMENT OVERVIEW

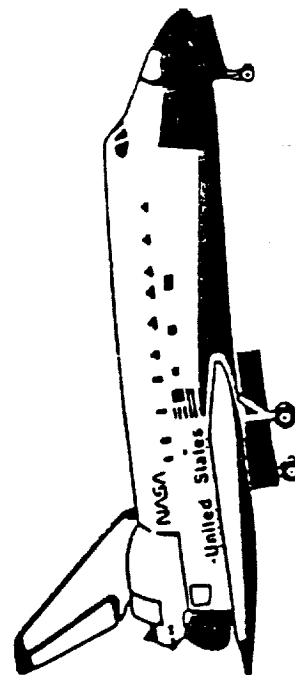
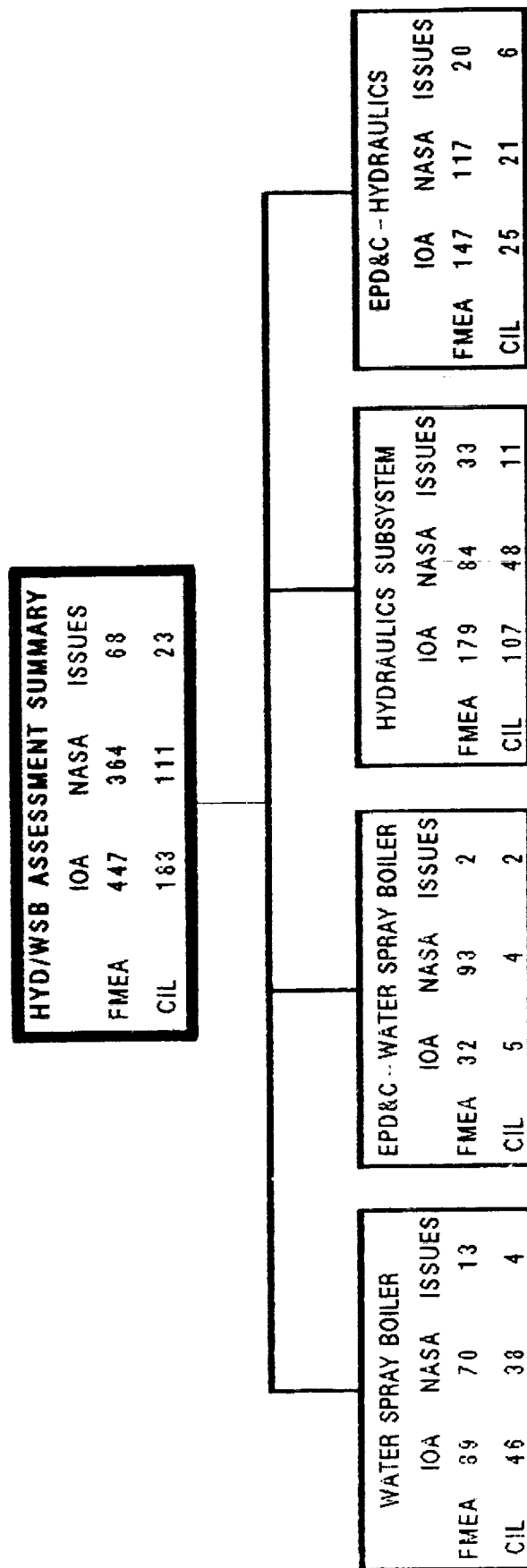


FIGURE 1 - HYDRAULICS/WATER SPRAY BOILER  
FMEA/CIL ASSESSMENT

## **2.0 INTRODUCTION**

### **2.1 Purpose**

The 51-L Challenger accident prompted the NASA to readdress safety policies, concepts, and rationale being used in the National Space Transportation System (NSTS). The NSTS Office has undertaken the task of reevaluating the FMEA/CIL for the Space Shuttle design. The MDAC is providing an independent assessment of the proposed Post 51-L Orbiter FMEA/CIL for completeness and technical accuracy.

### **2.2 Scope**

The scope of the independent FMEA/CIL assessment activity encompasses those Shuttle Orbiter subsystems and GFE hardware identified in the Space Shuttle Independent FMEA/CIL Assessment Contractor Statement of Work. Each subsystem analysis addresses hardware, functions, internal and external interfaces, and operational requirements for all mission phases.

### **2.3 Analysis Approach**

The independent analysis approach is a top-down analysis utilizing as-built drawings to breakdown the respective subsystem into components and low-level hardware items. Each hardware item is evaluated for failure mode, effects, and criticality. These data are documented in the respective subsystem analysis report, and are used to assess the proposed Post 51-L NASA and Prime Contractor FMEA/CIL. The IOA analysis approach is summarized in the following Steps 1.0 through 3.0. Step 4.0 summarizes the assessment of the NASA and Prime Contractor FMEA/CIL which is documented in this report.

- Step 1.0 Subsystem Familiarization
  - 1.1 Define subsystem functions
  - 1.2 Define subsystem components
  - 1.3 Define subsystem specific ground rules and assumptions
- Step 2.0 Define subsystem analysis diagram
  - 2.1 Define subsystem
  - 2.2 Define major assemblies
  - 2.3 Develop detailed subsystem representations
- Step 3.0 Failure events definition
  - 3.1 Construct matrix of failure modes
  - 3.2 Document IOA analysis results

- Step 4.0 Compare IOA analysis data to NASA FMEA/CIL
- 4.1 Resolve differences
- 4.2 Review in-house
- 4.3 Document assessment issues
- 4.4 Forward findings to Project Manager

## **2.4 Ground Rules and Assumptions**

The HYD/WSB ground rules and assumptions used in the IOA are defined in Appendix B. The subsystem specific ground rules were defined to provide necessary additions and clarifications to the ground rules and assumptions contained in NSTS 22206.

### 3.0 SUBSYSTEM DESCRIPTION

#### 3.1 Design and Function

The hydraulic subsystem is made up of three independent hydraulic systems, each with its own APU/pump, reservoir, water spray boiler for APU lube oil and hydraulic fluid cooling, and distribution systems. A typical system is shown in Figure 2.

##### Water Spray Boiler

The water spray boiler (WSB) system consists of three identical independent units, one for each APU/hydraulic system. Each WSB is used while its associated APU is active in order to cool the APU lubricating oil and the Orbiter hydraulic fluid. Each WSB consists of the following components:

- o Water tank with gaseous nitrogen (GN<sub>2</sub>) pressurization
- o Internal boiler
- o Electronic controllers (two per system)
- o Heaters
- o Temperature and pressure sensors

The WSB stores water in a bellows-type storage tank, which is pressurized by nitrogen to provide positive water expulsion to feed the boiler. The WSB system operates in either a pool or spray mode. The hydraulic fluid and APU lubricating oil pass through the boiler in a set of tubes which are either immersed in water (pool mode) or sprayed with water from three hydraulic fluid water spray bars and two APU lube oil water spray bars (spray mode).

During ascent and entry the boiler operates in the pool mode. As the vehicle ascends, the APU lube oil heats up. Eventually the boiler water precharge boils off, and the boiler goes into the spray mode (the hydraulic fluid usually does not heat up enough during ascent to require any spray cooling). During the lower part of entry, when the boiler temperature (i.e., the boiling point of water) reaches 188 degrees F, the WSB returns to the pool mode. The spray bars begin discharging water to fill the boiler. As the water reaches the liquid level sensors, the spray is turned off to prevent the boiler from overflowing. The water that is boiled off exits the Orbiter through a steam duct located to the right of the vertical stabilizer.

##### EPD&C - Water Spray Boiler

The EPD&C support for a typical Water Spray Boiler unit is illustrated in Figure 3. The EPD&C system provides AC and DC power to the WSB related transducers, signal conditioners and logic circuits. Remote power controllers (RPC) in the Aft Power

ORIGINAL PAGE IS  
OF POOR QUALITY

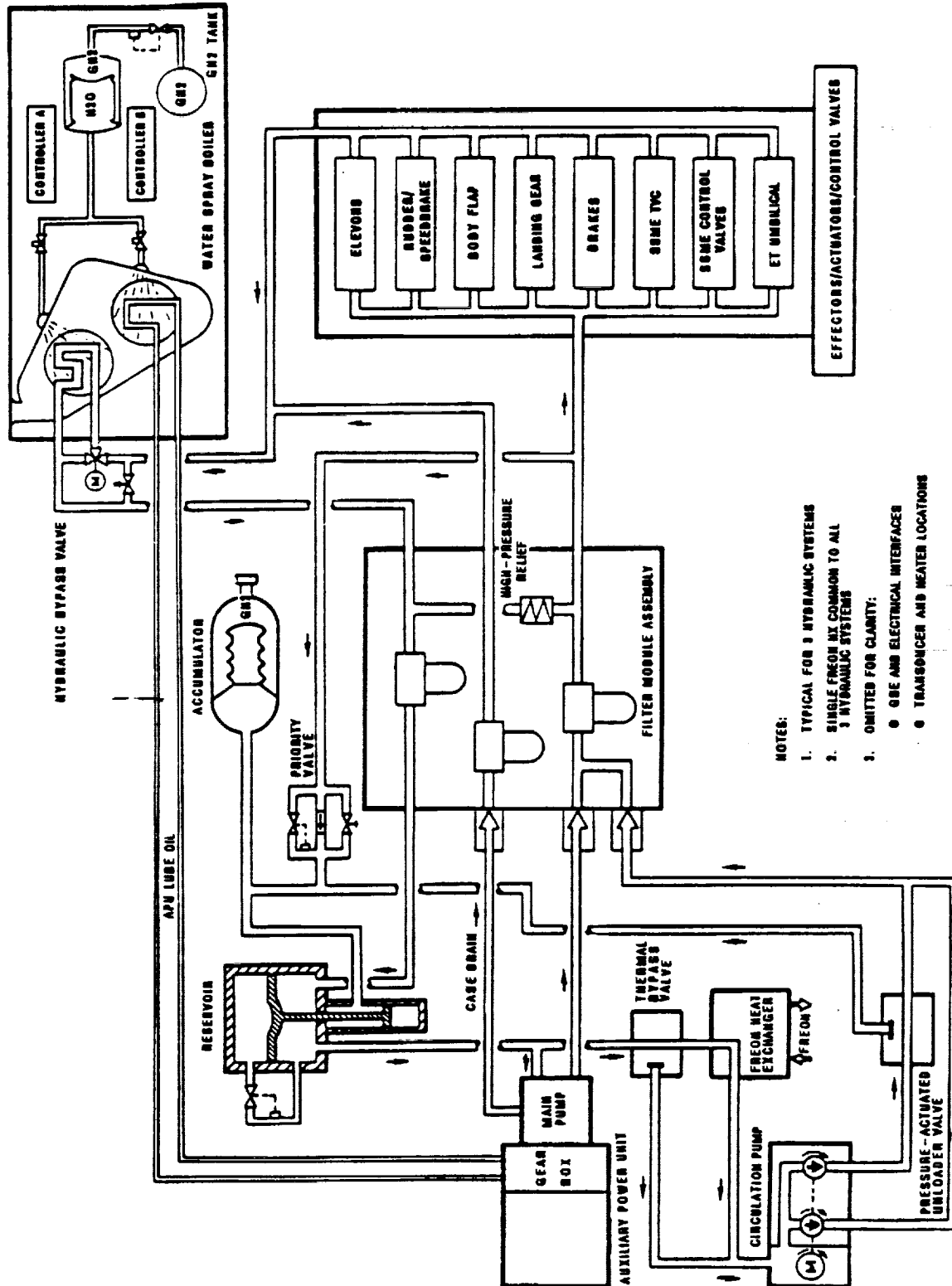


Figure 2 - HYDRAULICS/WATER SPRAY BOILER DIAGRAM



# EPD&C - WATER SPRAY BOILER

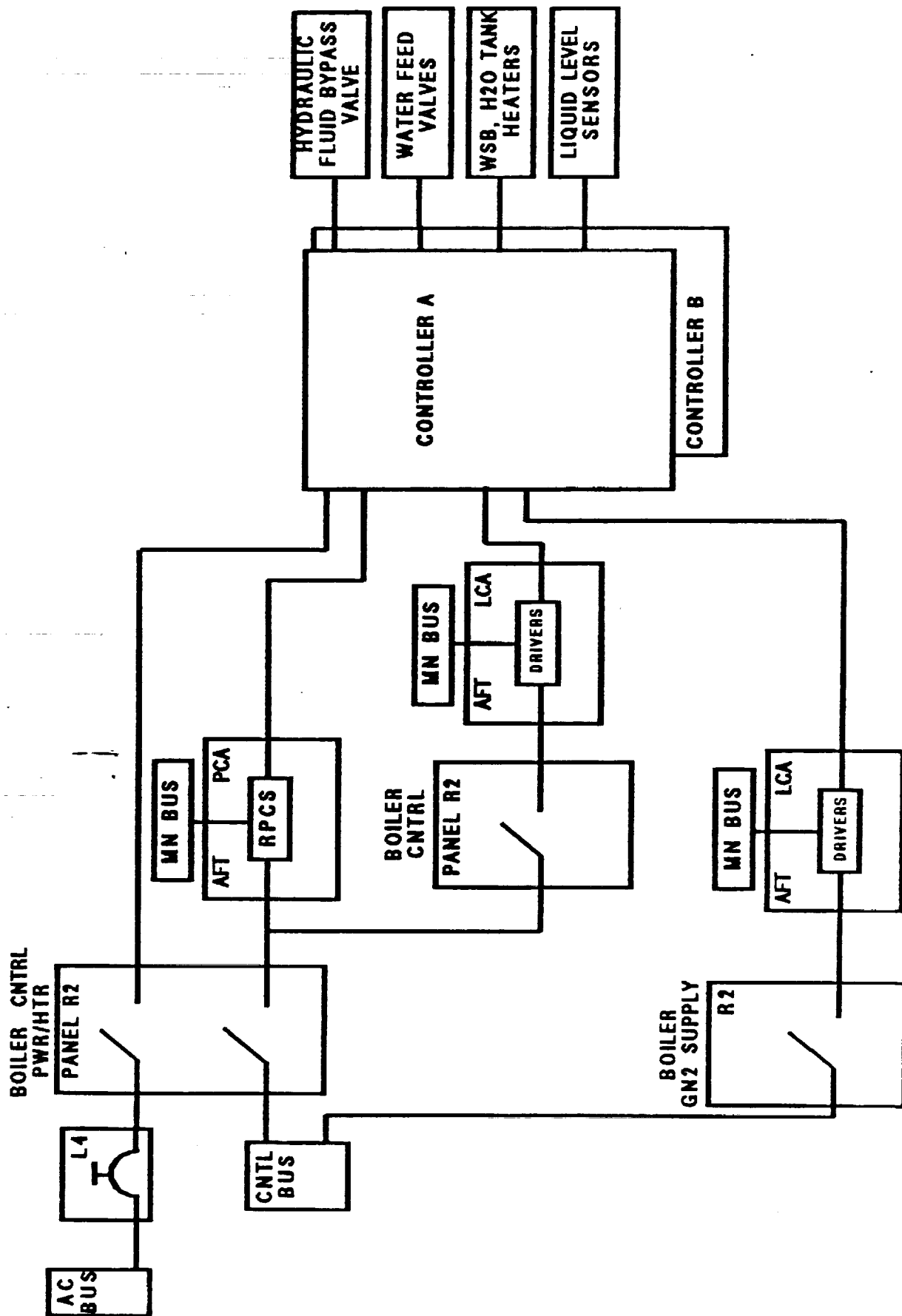


Figure 3 - EPD&C - WATER SPRAY BOILER DIAGRAM

Control Assembly (PCA) provide the 28 Vdc required to operate the WSB heaters and solenoid and motor operated valves. Hybrid circuit drivers in aft load control assemblies (LCA) supply power to the boiler control circuits and GN<sub>2</sub> supply control circuits respectively in the boiler controllers. Control voltage required to activate the drivers are supplied through boiler control switches located on Orbiter panel R2.

The WSB has two redundant controllers, A and B. Only one controller is used at a time. The controller regulates the water spray and the hydraulic fluid bypass valve (bypasses WSB at 190 degrees F; flows through WSB at 210 degrees F) based on fluid outlet temperature transducers. Controller A provides for computation of WSB water tank quantity by the SM GPC based on water tank temperature transducer and GN<sub>2</sub> line pressure readings. Controller B is identical to Controller A except that the following outputs are lost.

- o H<sub>2</sub>O quantity computation
- o GN<sub>2</sub> tank temperature
- o GN<sub>2</sub> regulator pressure
- o H<sub>2</sub>O tank pressure
- o Hydraulic bypass valve position indicator

The water boiler, water tank, and steam vent are equipped with heaters to prevent freeze-up in orbit. The heaters are cycled automatically by the WSB controller. Each controller controls one set of redundant heaters.

### Hydraulic System

The hydraulic system provides the hydraulic power to operate the aerosurface controls (elevons, rudder/speed brake, and body flap), ET umbilical retractors (LH2 and LO2), SSME thrust vector control actuators, SSME control valves, landing gear retract and deployment, main wheel brakes and antiskid control, and nosewheel steering. Hydraulic power is generated by APU driven pumps. Two operational systems are required to provide the maximum aerosurface rotational rates needed for worst-case descent conditions.

Each hydraulic system uses a hydraulic fluid reservoir, which stores and provides fluid to the inlet side of an APU-driven variable-displacement pump. Upon demand, the fluid is pumped through a check valve, a filter, and fluid lines which incorporate a precharged accumulator. The accumulator serves to absorb system pressure surges by means of a priority valve and provides pressurization to the reservoir. An electric motor driven constant displacement circulation pump provides low pressure hydraulic power for hydraulic system thermal conditioning and high pressure hydraulic power for accumulator recharging during the on-orbit flight phase.

## EPD&C - Hydraulics

The EPD&C support to the hydraulics system is illustrated in Figure 4. The switches, PBIs and circuit breakers which allow the crew to configure and control the EPD&C, and the components of the hydraulic system are located on panels on the flight deck. The electrical power is controlled and distributed by use of power controller assemblies and load controller assemblies. These assemblies are comprised of buses, resistors, fuses, diodes, and remote switching devices (remote power controllers, hybrid circuit drivers, and relays). The power controller assemblies and load controller assemblies distribute dc power to all the system loads using remote switching devices.

The EPD&C provides power to the following hydraulic components.

- o Heaters
- o Circulation Pumps
- o Main Pump Depress Solenoid
- o Landing Gear Retract/Circ. Valve
- o MPS/TVC Isolation Valve
- o Landing Gear Isolation Valve
- o Orbiter/ET Umbilical Actuators
- o Temperature and Pressure Transducers

### **3.2 Interfaces and Locations**

The locations of the hydraulics and water spray boiler components on the Orbiter are shown in Figure 5.

The hydraulics system interfaces with and provides power to the aerosurface controls (elevons, rudder/speedbrake, and body flap), ET umbilical actuators (LH2 and LO2), SSME thrust vector control actuators, SSME control valves, landing gear retract and deploy actuators, main wheel brakes and antiskid control, and nosewheel steering.

The water spray boiler interfaces with the hydraulics system and the APU to provide cooling for the hydraulic fluid and APU lube oil. In addition to this cooling interface, the hydraulics system interfaces with the environmental control and life support system to absorb heat from the Freon heat exchanger.

Both the hydraulics system and the water spray boiler interface with the EPD&C system, the Display and Control (D&C) system, the instrumentation system, and the GPC software. The EPD&C system provides the electric power and the control assemblies for motors and valves. The D&C system provides the capability for the crew to monitor, configure or manually control the systems where necessary. The instrumentation system processes the performance parameters required for system monitoring and control. The GPC software provides automatic control for hydraulic fluid thermal

# EPD&C - HYDRAULICS DIAGRAM

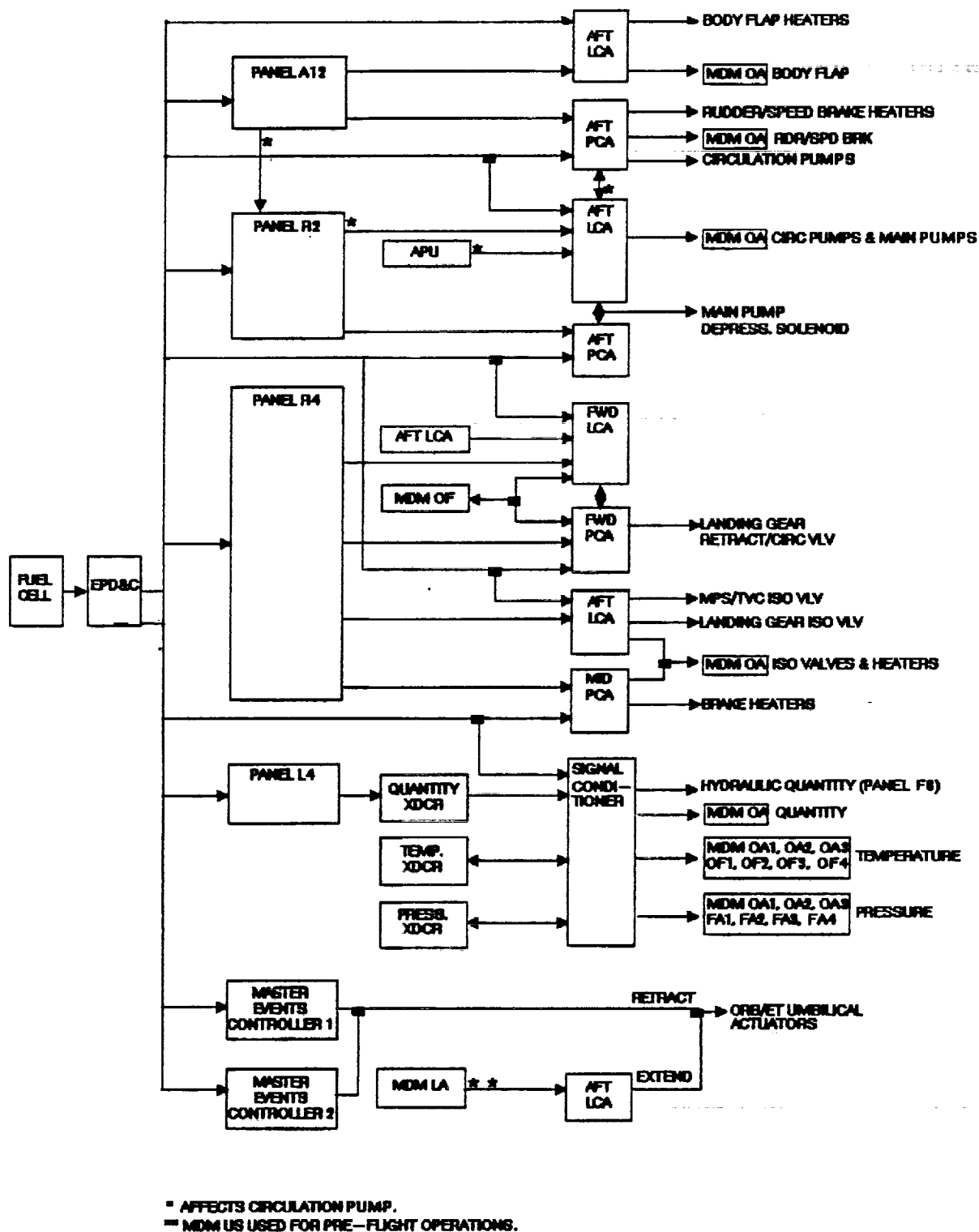


Figure 4 - EPD&C - HYDRAULICS DIAGRAM

# HYDRAULICS AND WATER SPRAY BOILER COMPONENT LOCATIONS

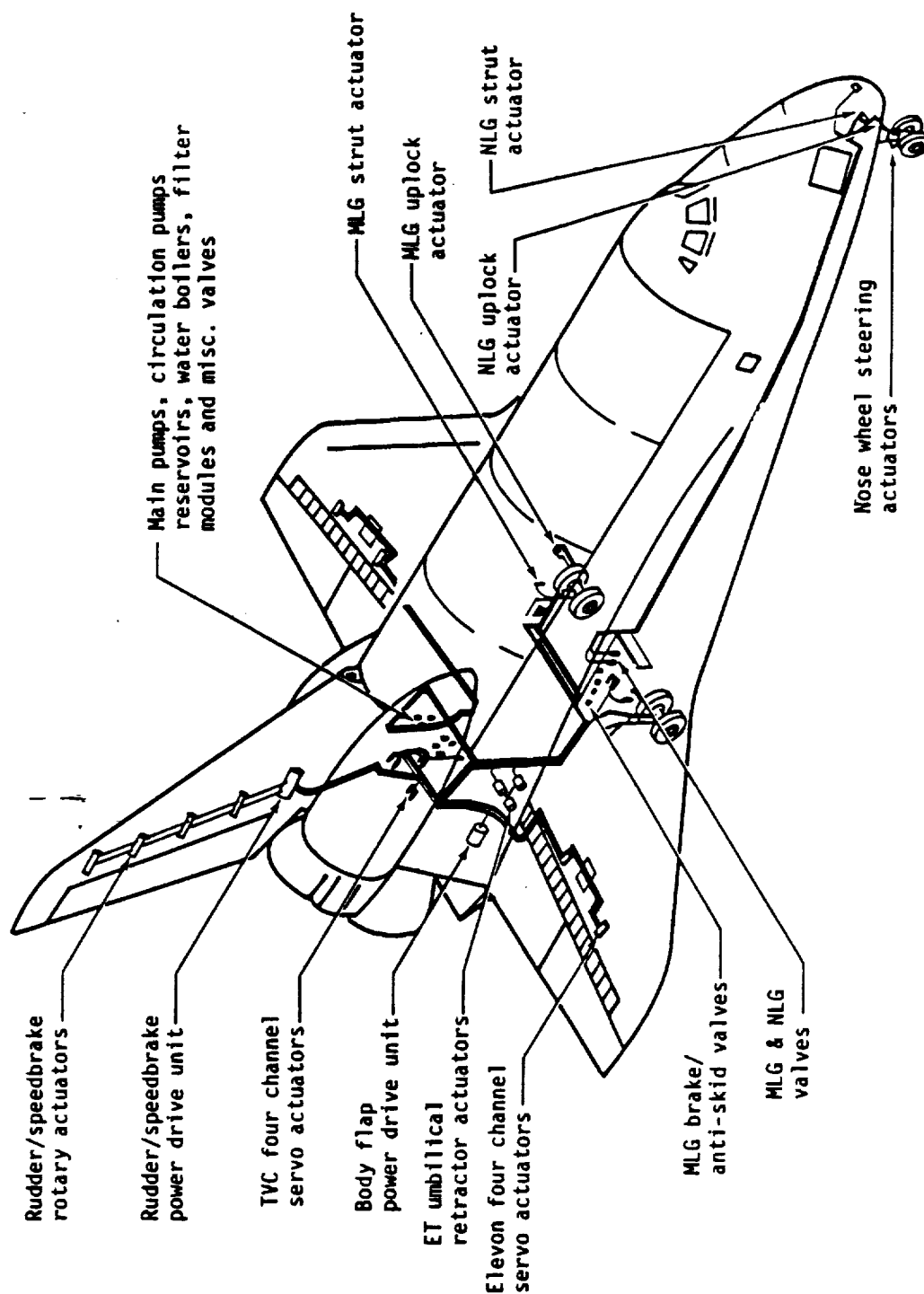


Figure 5 - HYDRAULICS AND WATER SPRAY BOILER COMPONENT LOCATIONS

conditioning, accumulator pressure maintenance and landing gear isolation valve positioning. It also provides priority rate limiting which automatically manages loads on the remaining hydraulic systems or system if one or two hydraulic systems are lost for ascent or entry.

### 3.3 Hierarchy

Figure 6 illustrates the hierarchy of the HYD/WSB hardware and the corresponding components used for purposes of analysis. Figures 7 through 25 comprise the detailed system representations.

# HYDRAULICS/WATER SPRAY BOILER ANALYSIS HIERARCHY

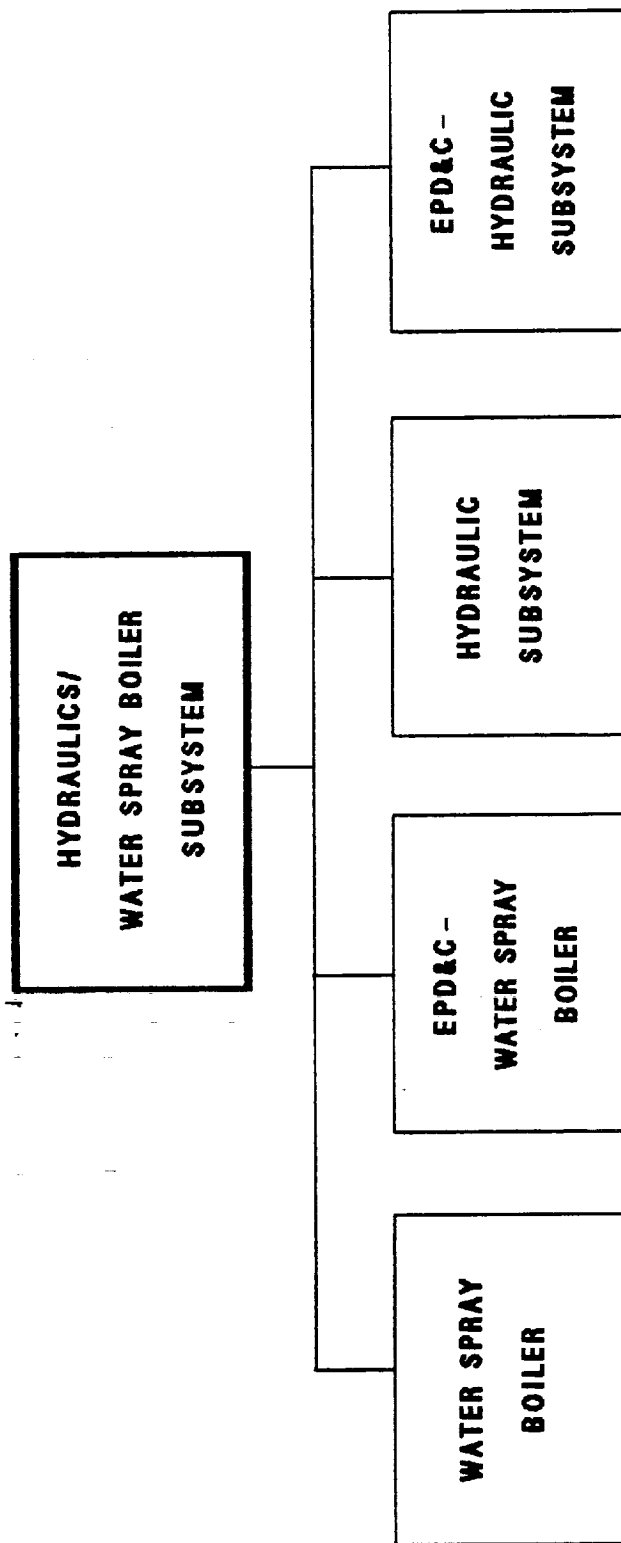


Figure 6 - HYDRAULICS/WATER SPRAY BOILER ANALYSIS HIERARCHY

# WATER SPRAY BOILER

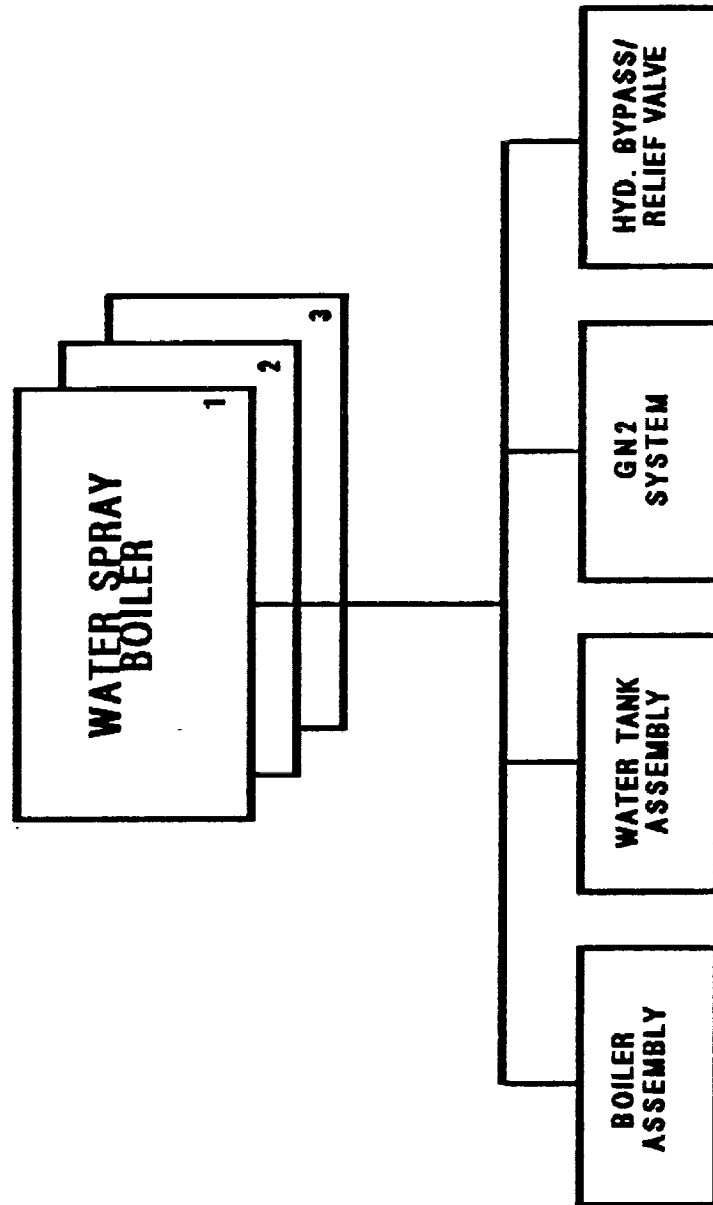


Figure 7 - WATER SPRAY BOILER



# BOILER ASSEMBLY

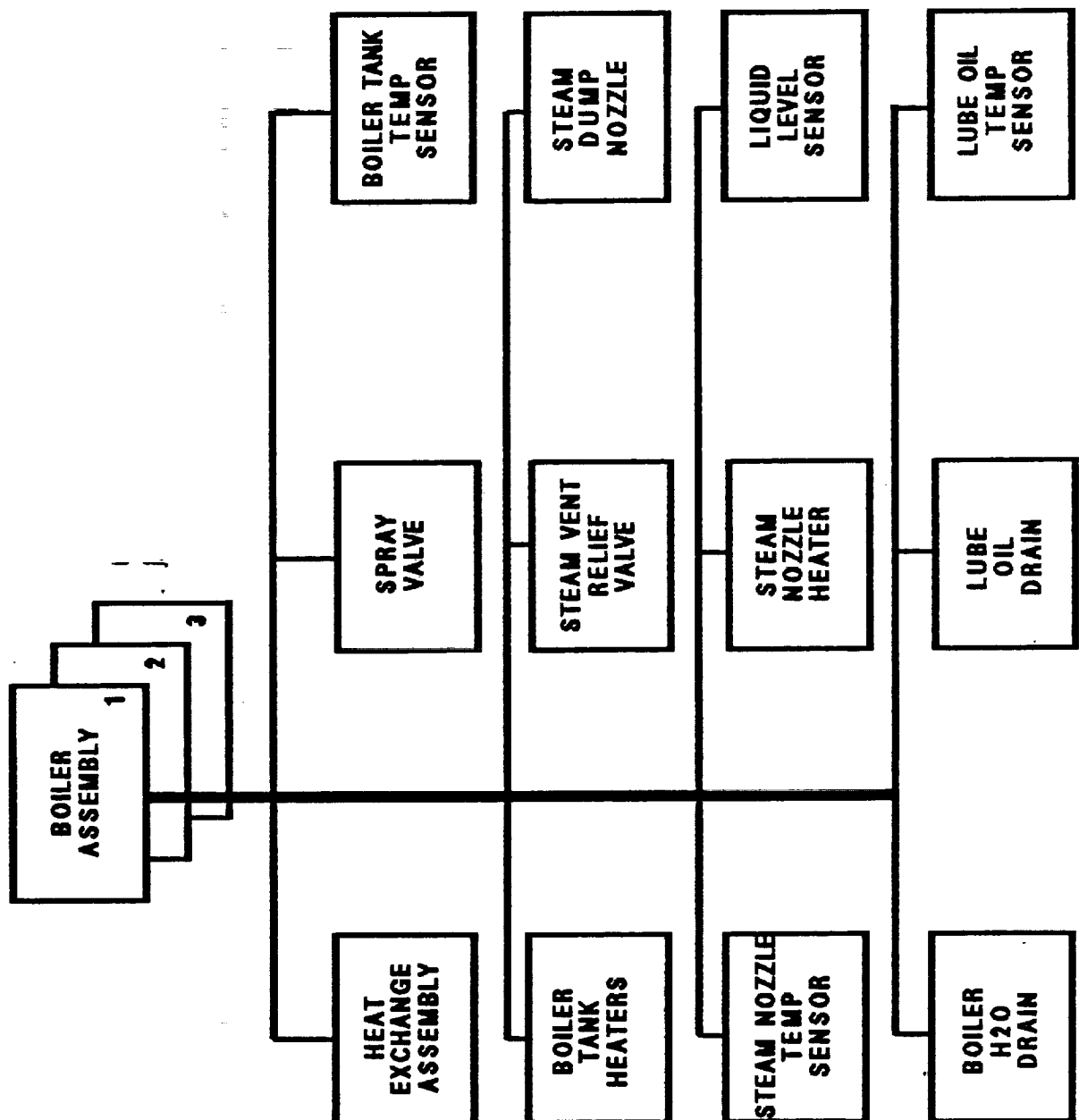


Figure 8 - BOILER ASSEMBLY

# WATER TANK ASSEMBLY

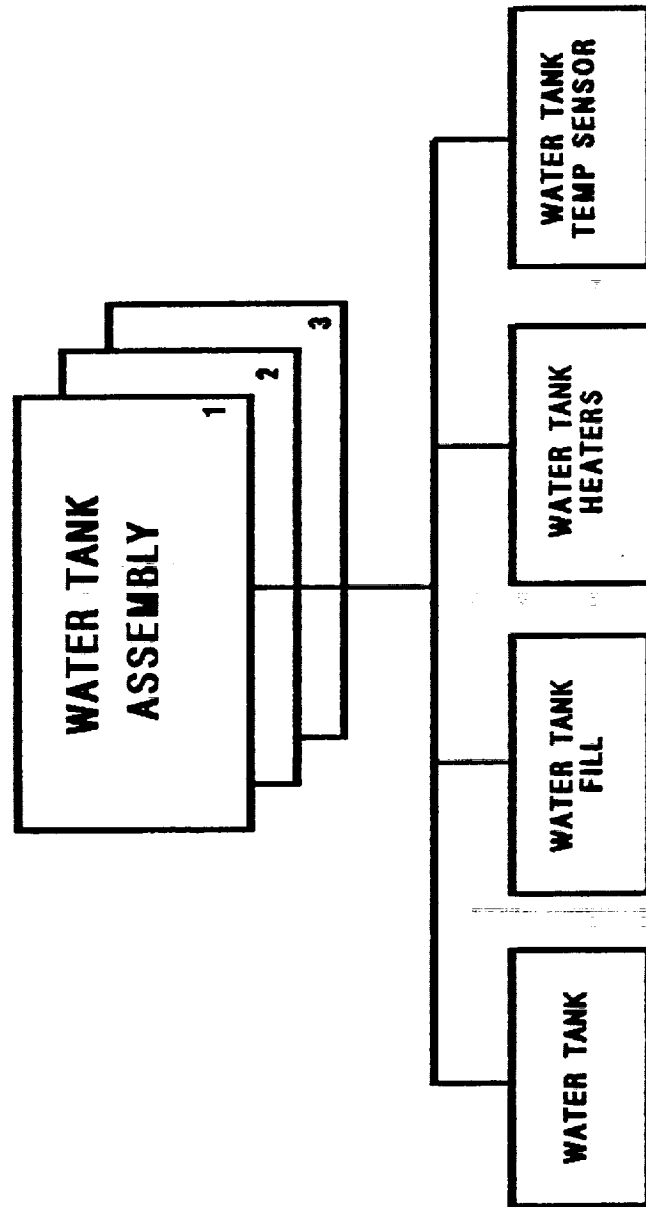
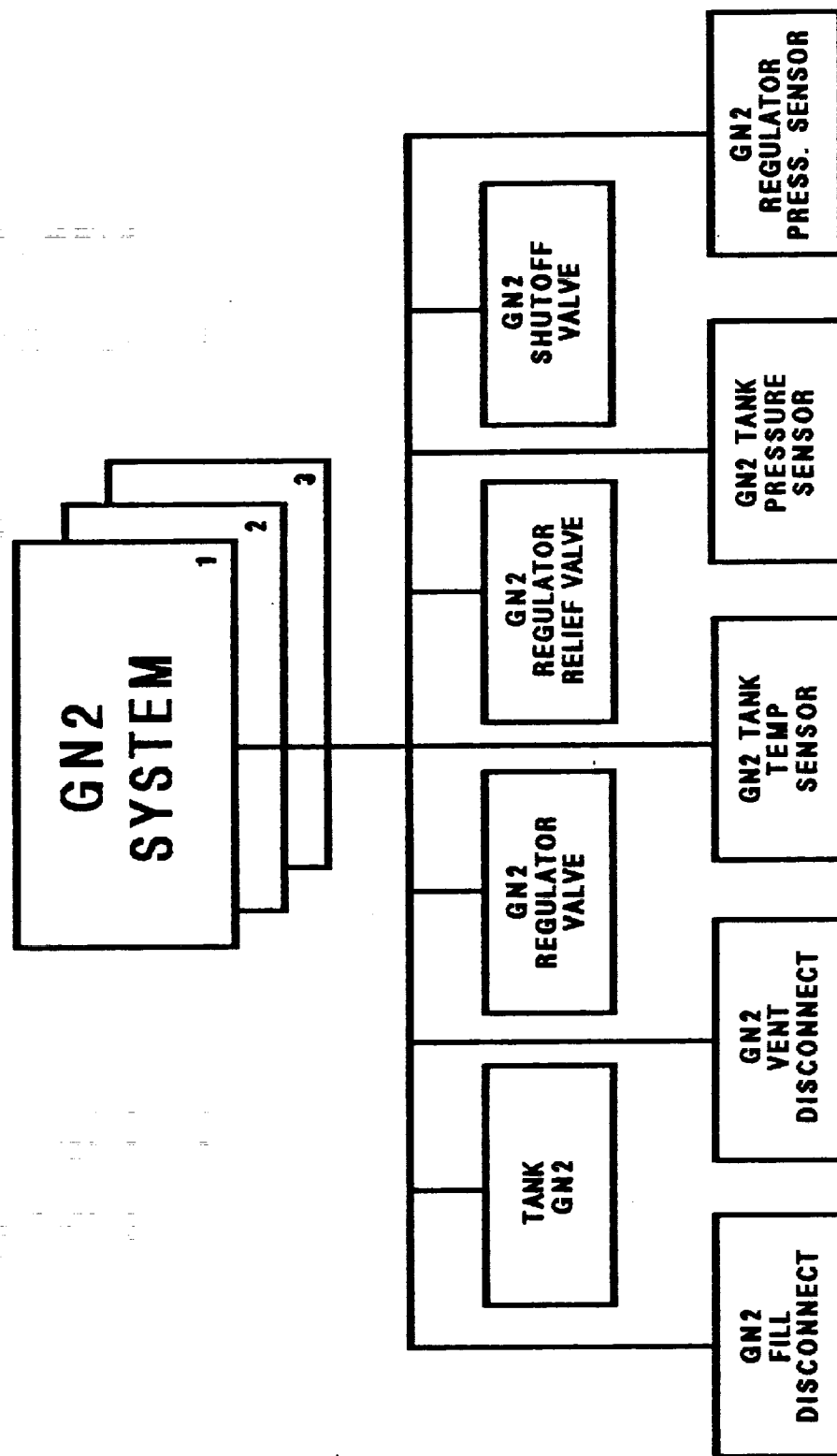


Figure 9 - WATER TANK ASSEMBLY

# GN2 SYSTEM



HYD001GF 12/10/86

Figure 10 - GN2 SYSTEM

# HYDRAULIC BYPASS/RELIEF VALVE

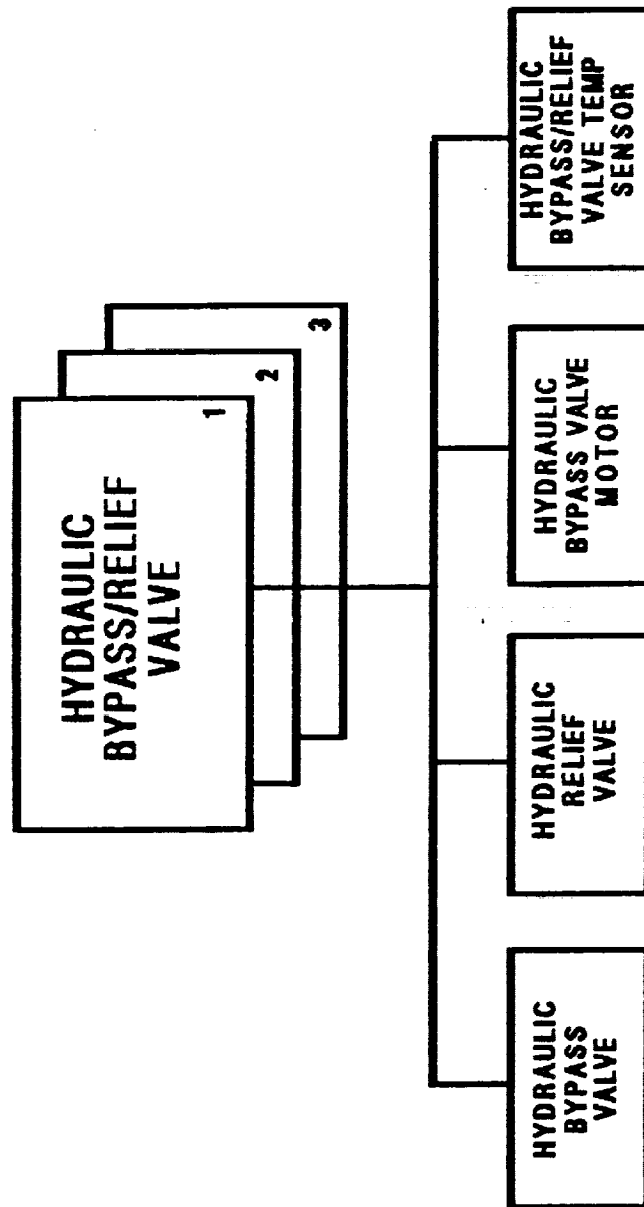


Figure 11 - HYDRAULIC BYPASS/RELIEF VALVE

# EPD&C WATER SPRAY BOILER

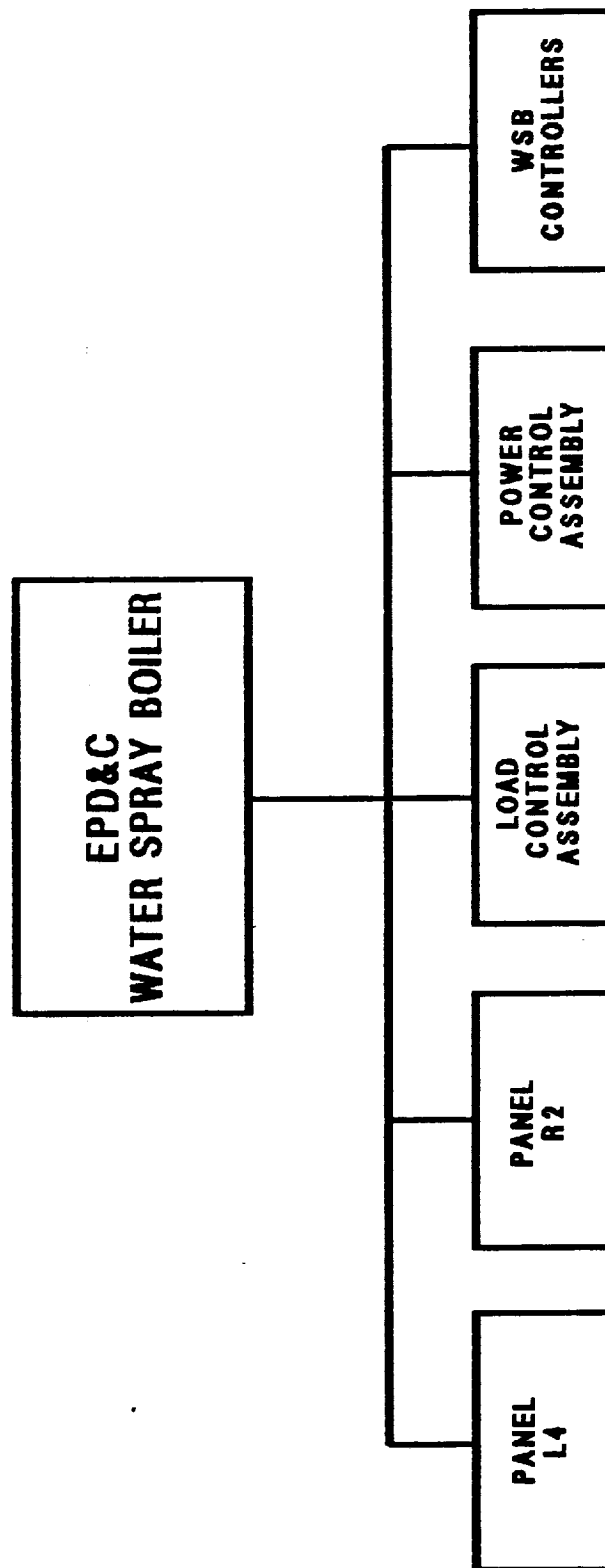


Figure 12 - EPD&C WATER SPRAY BOILER

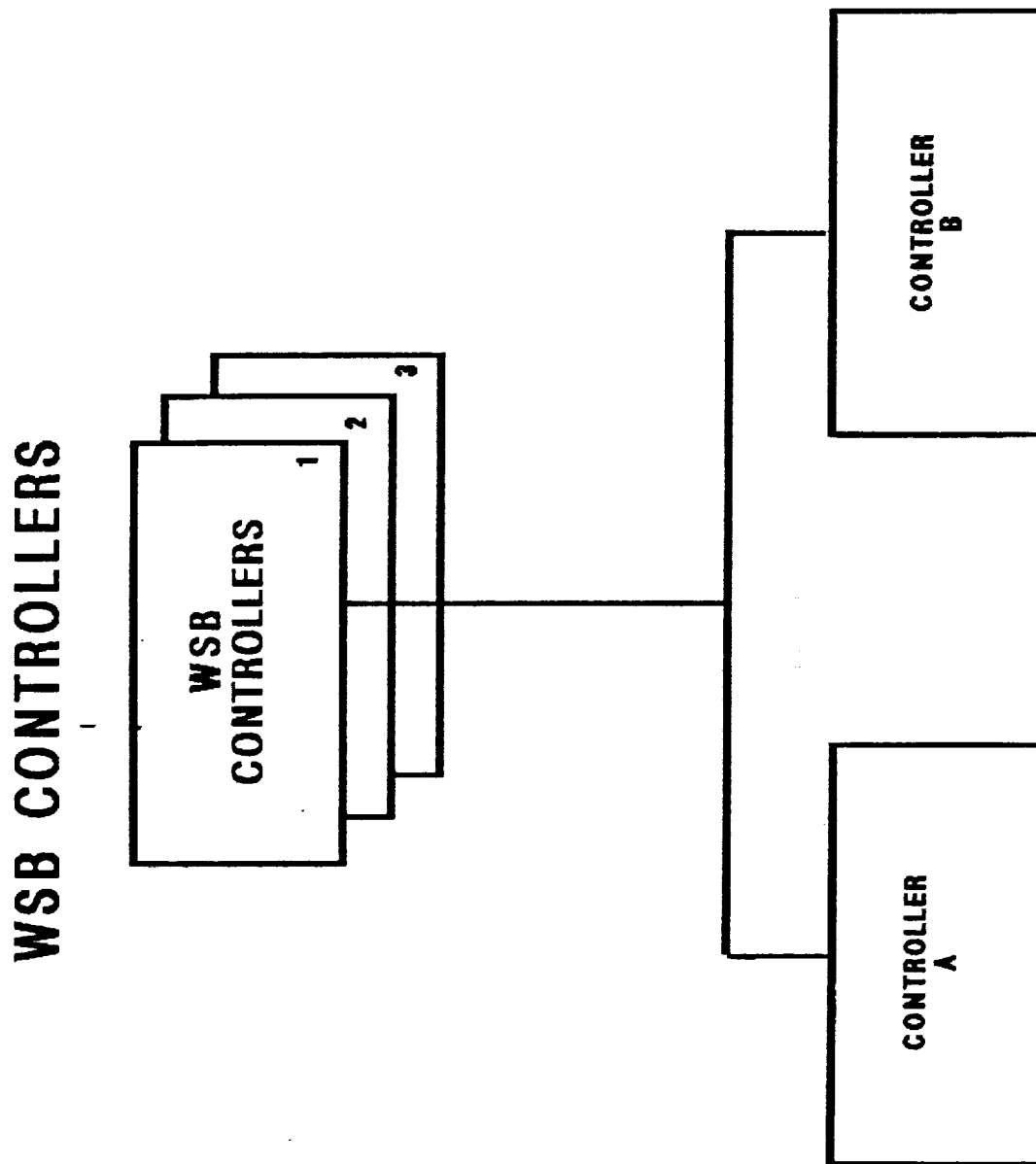


Figure 13 - WSB CONTROLLERS

# HYDRAULIC SYSTEM

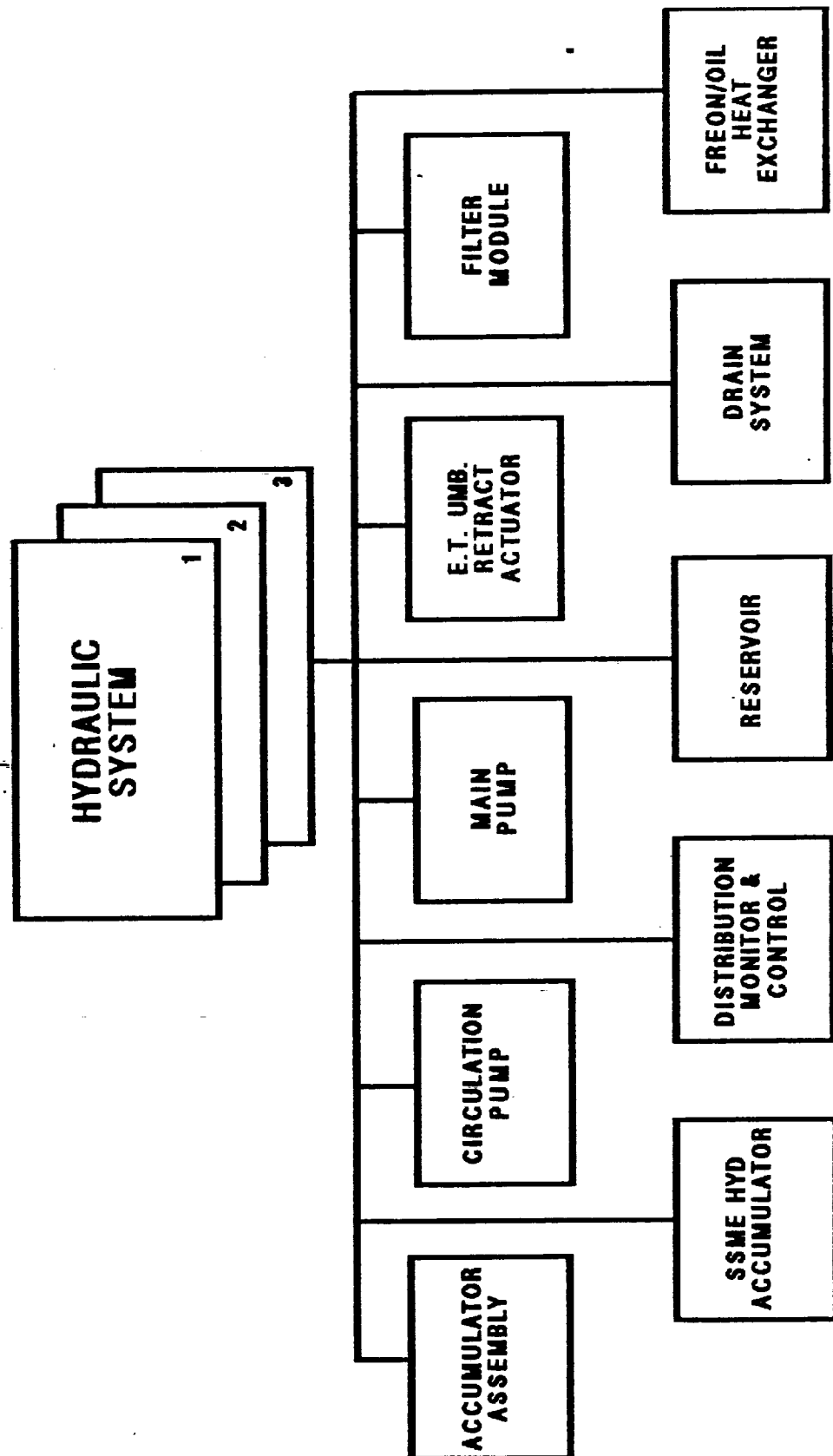


Figure 14 - HYDRAULIC SYSTEM

# ACCUMULATOR ASSEMBLY

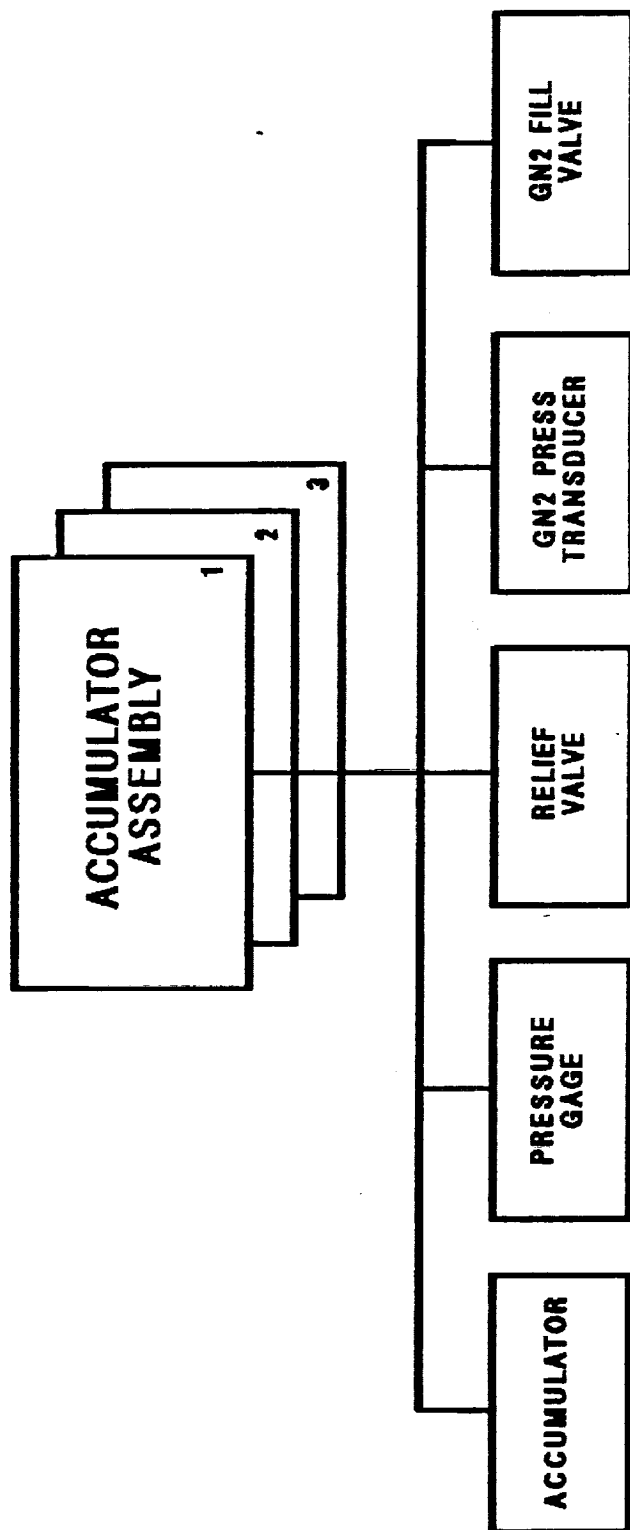


Figure 15 - ACCUMULATOR ASSEMBLY



# SSME HYDRAULIC ACCUMULATOR ASSEMBLY

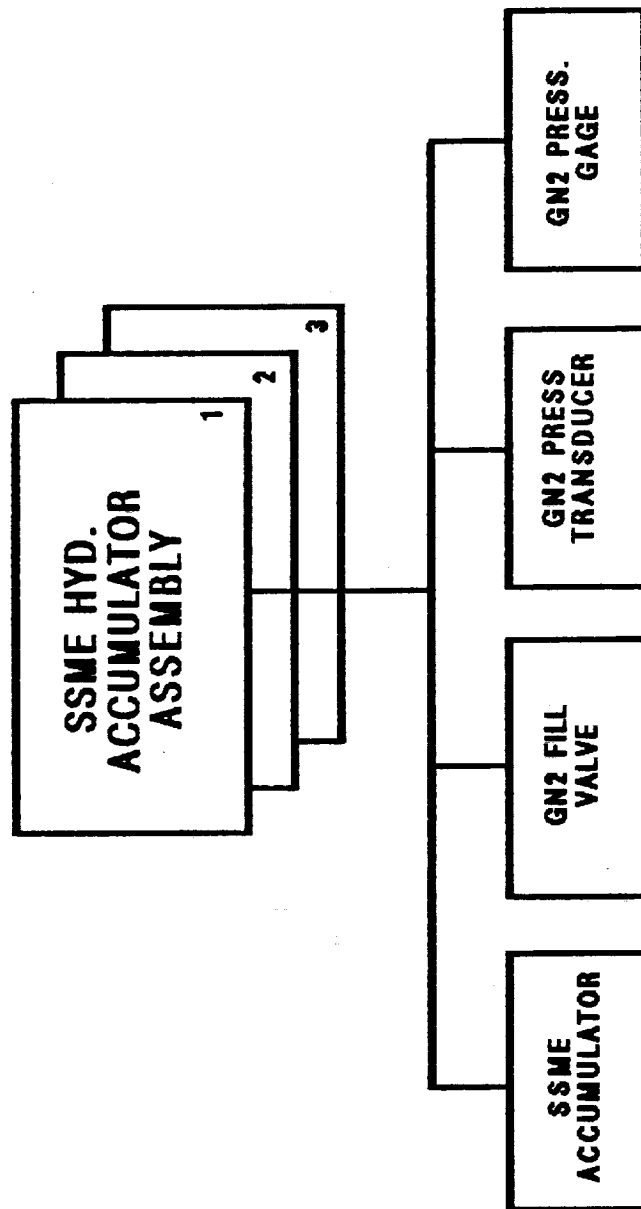


Figure 16 - SSME HYDRAULIC ACCUMULATOR ASSEMBLY

# CIRCULATION PUMP ASSEMBLY

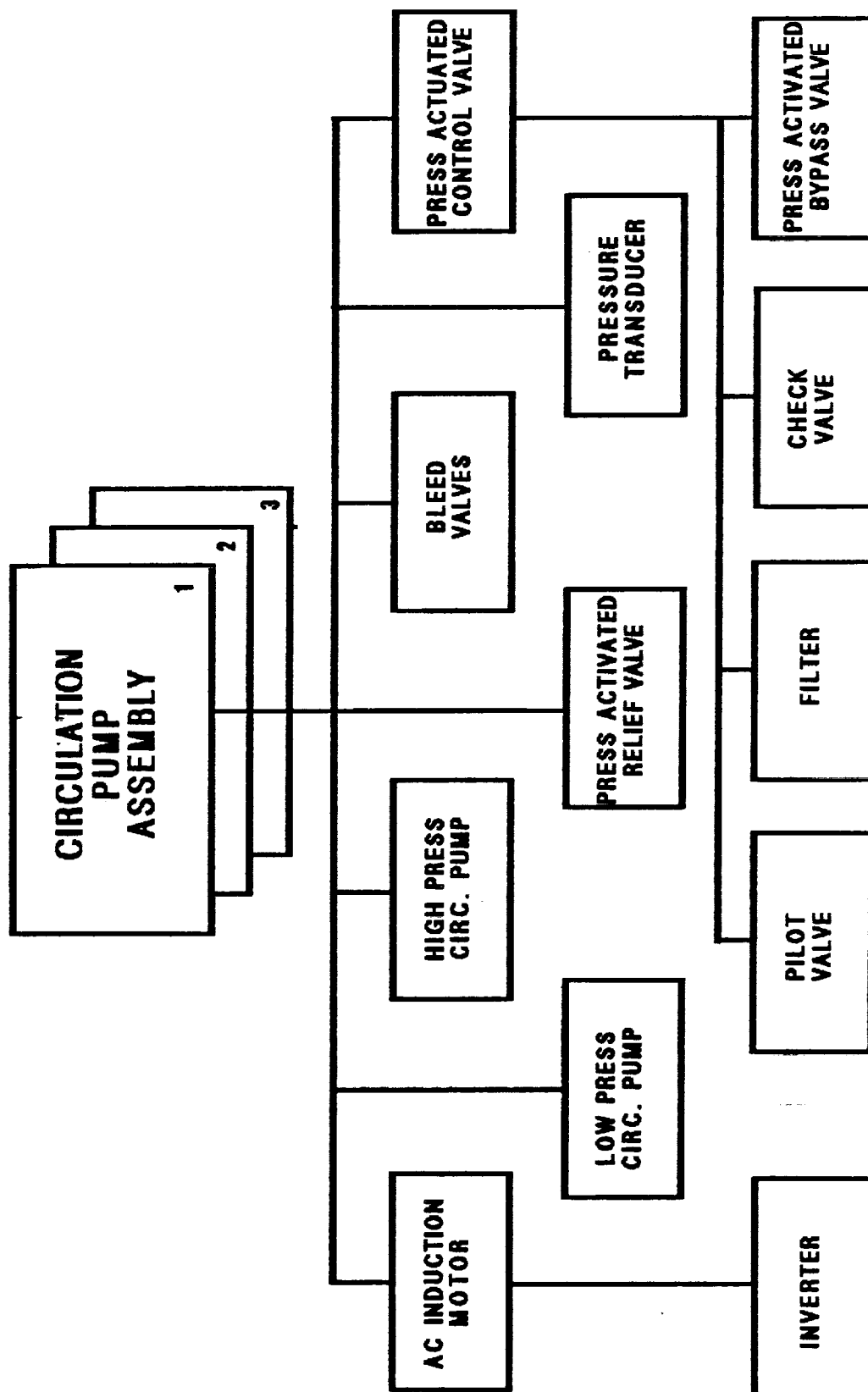


Figure 17 - CIRCULATION PUMP ASSEMBLY

# HYDRAULIC DISTRIBUTION, MONITOR AND CONTROL

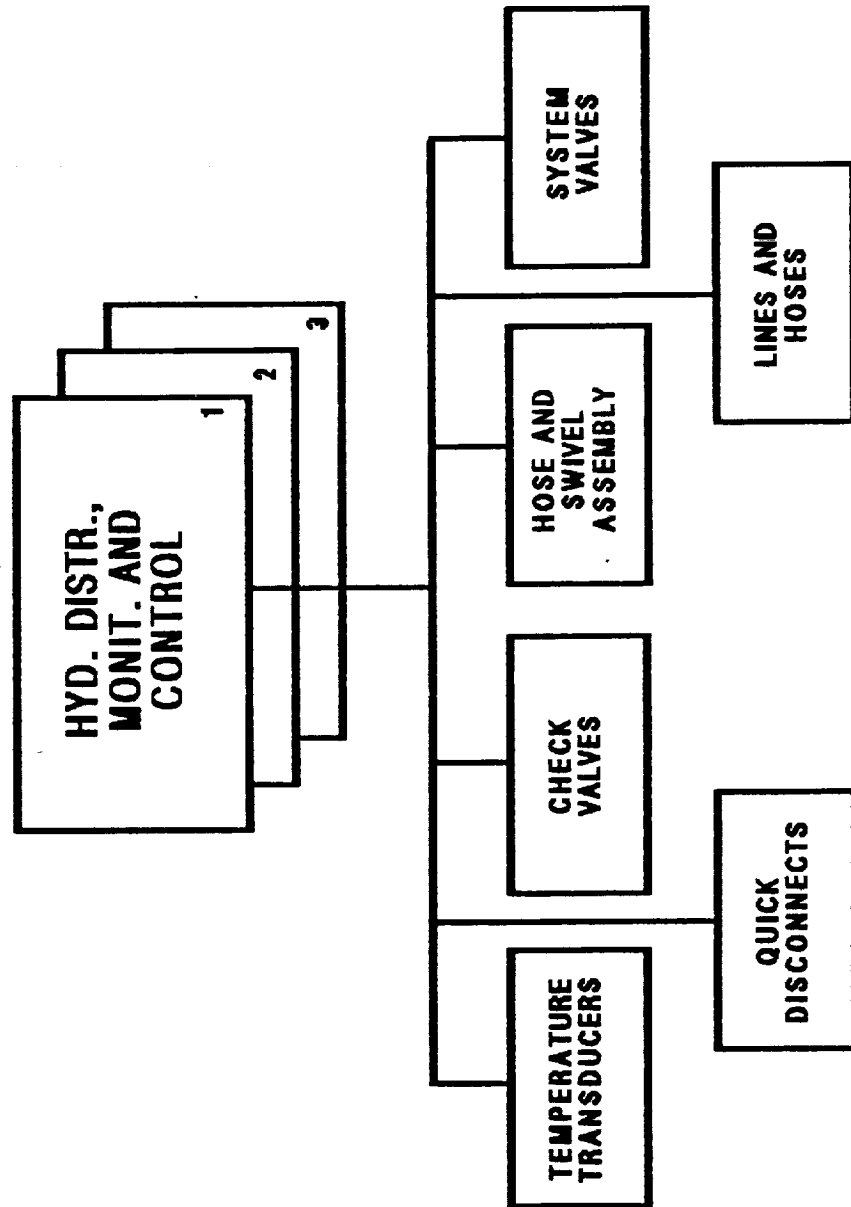


Figure 18 - HYDRAULIC DISTRIBUTION, MONITOR AND CONTROL

# **MAIN PUMP ASSEMBLY**

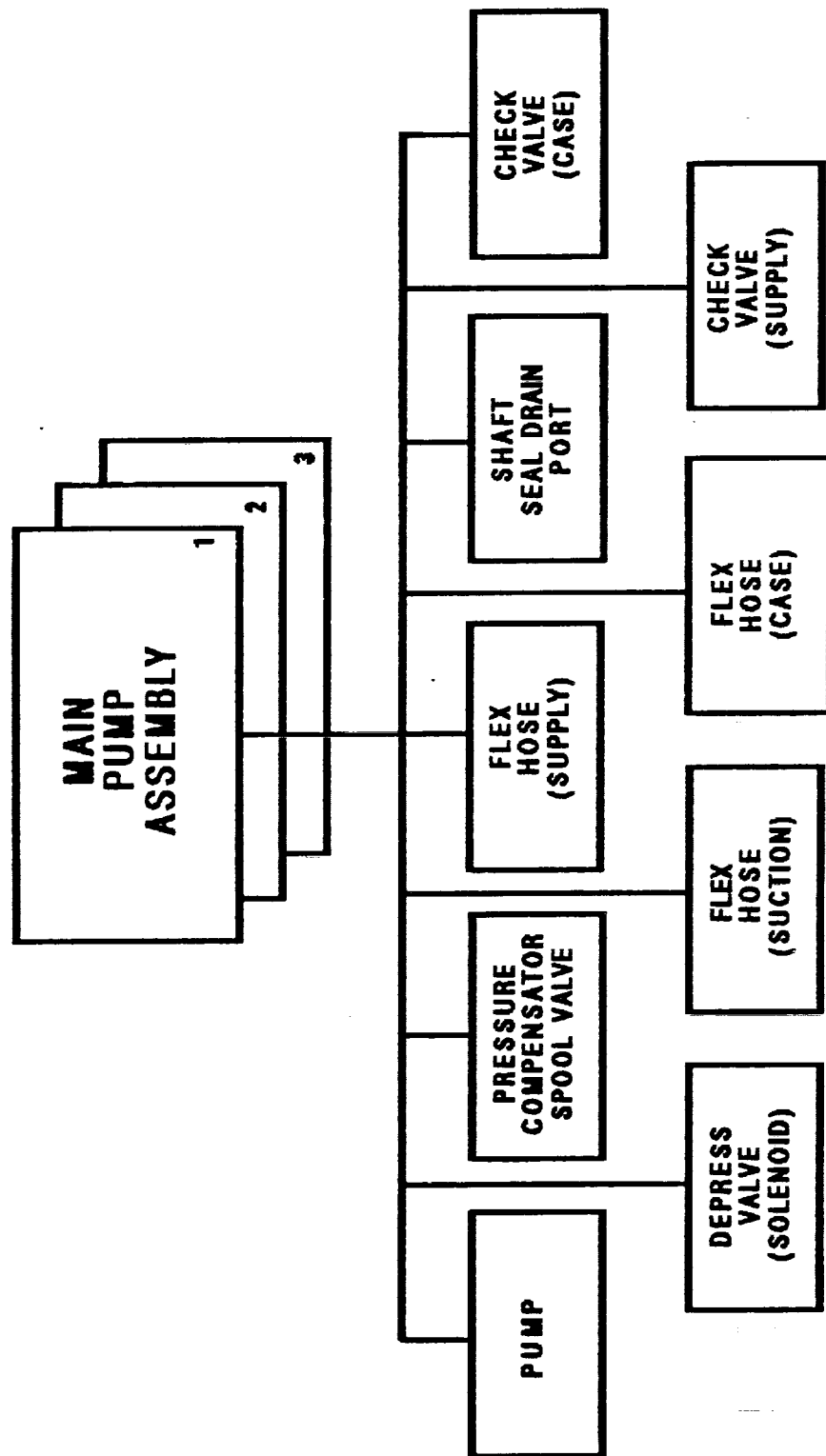


Figure 19 - MAIN PUMP ASSEMBLY

## RESERVOIR ASSEMBLY

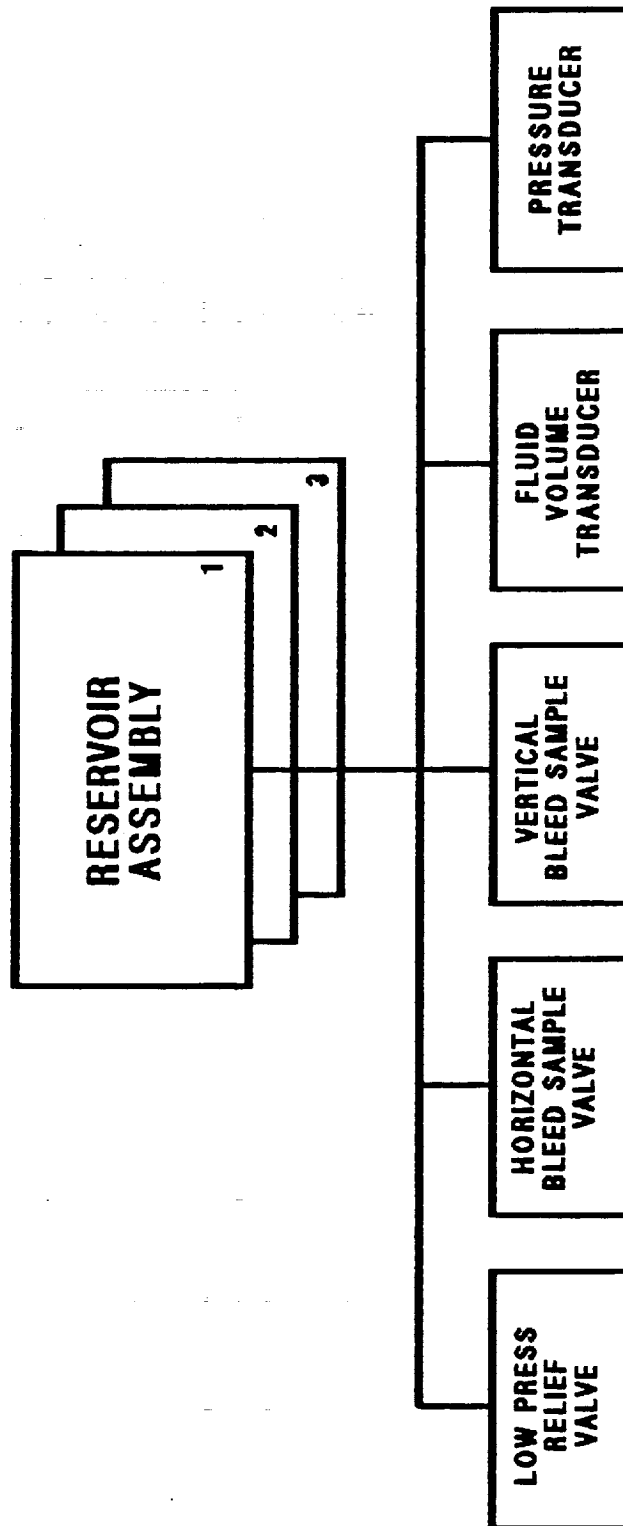


Figure 20 - RESERVOIR ASSEMBLY

# E.T. UMBILICAL RETRACT ACTUATOR ASSEMBLY

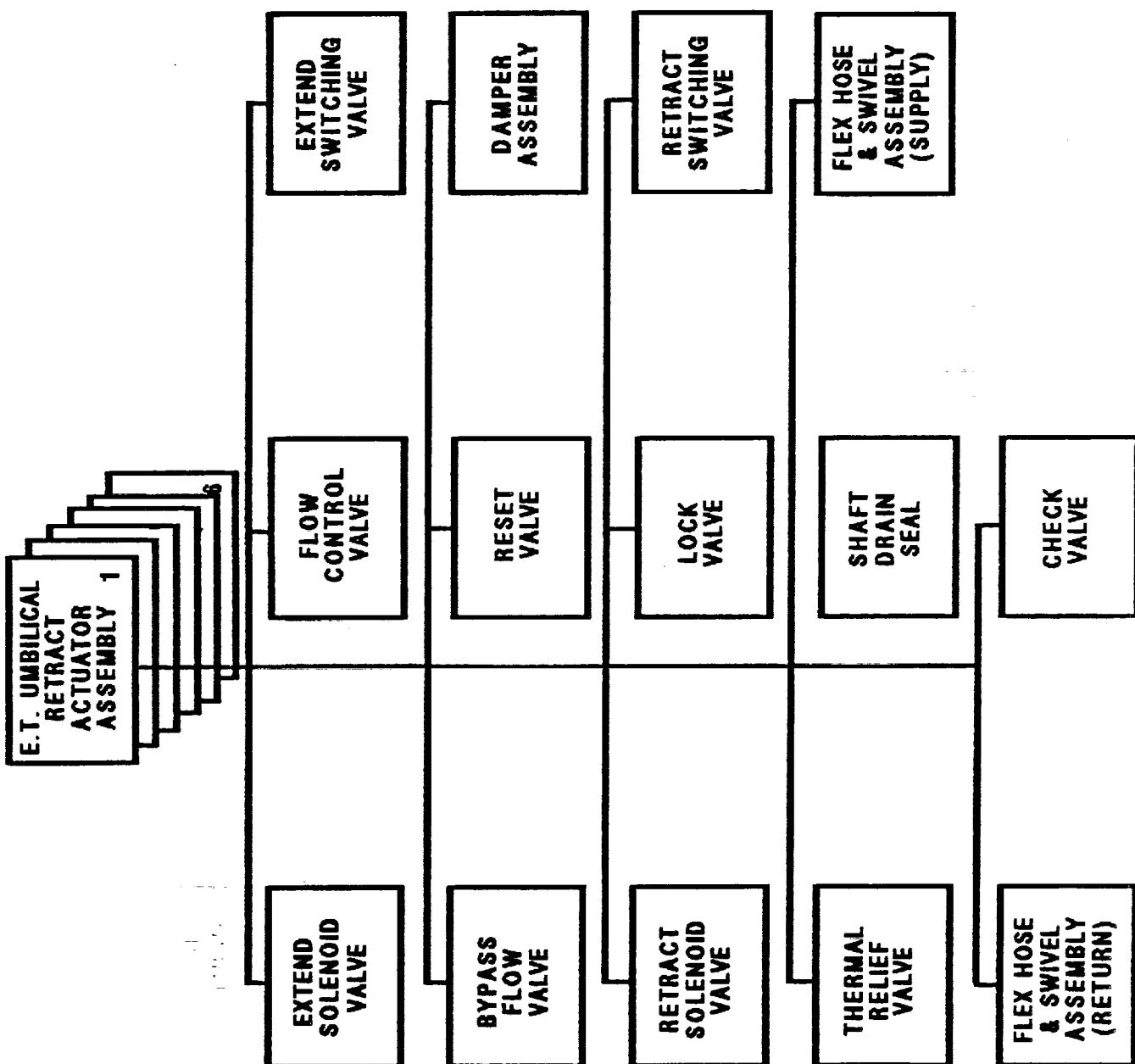


Figure 21 - E.T. UMBILICAL RETRACT ACTUATOR ASSEMBLY

# DRAIN SYSTEM

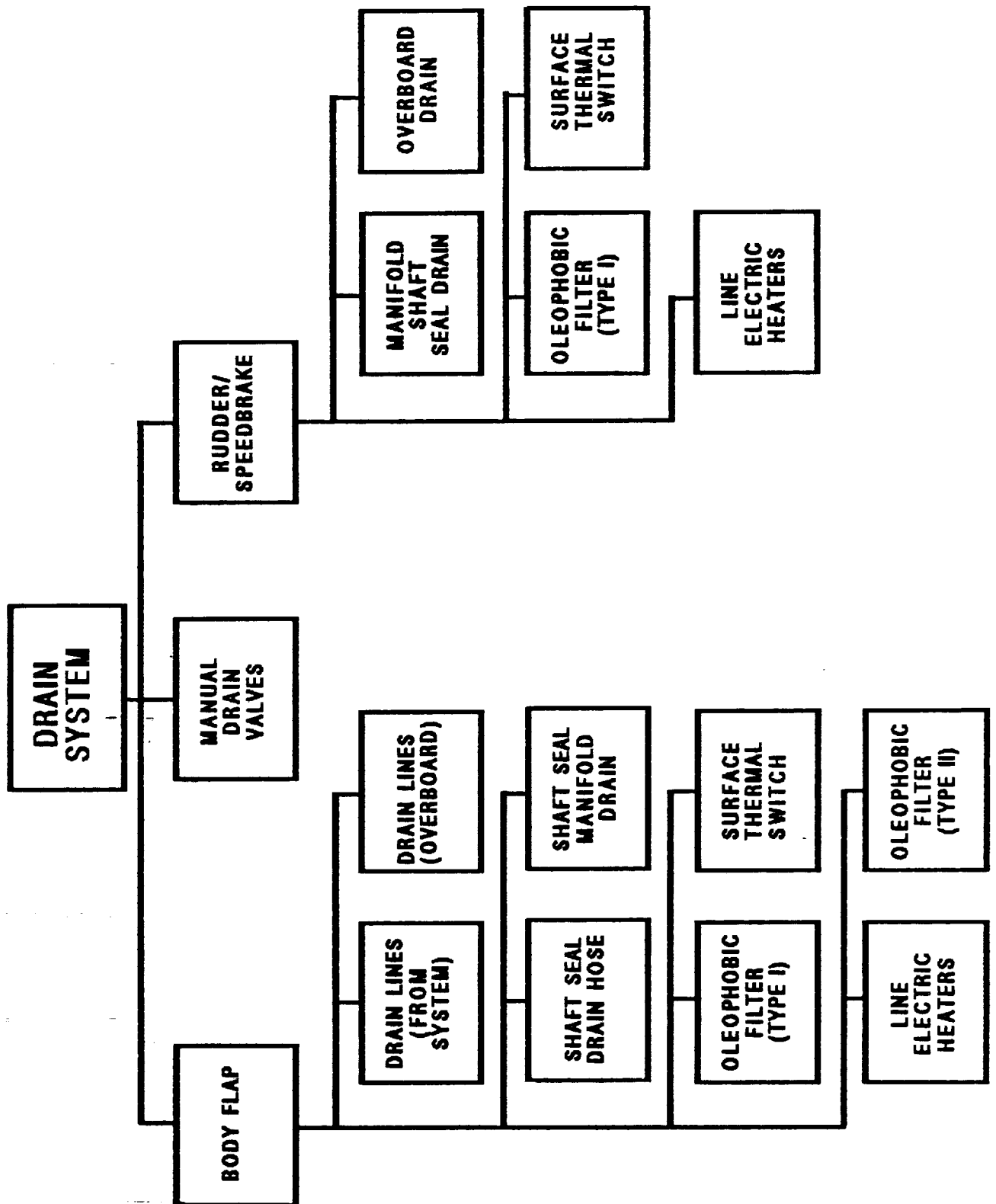


Figure 22 - DRAIN SYSTEM

# FILTER MODULE

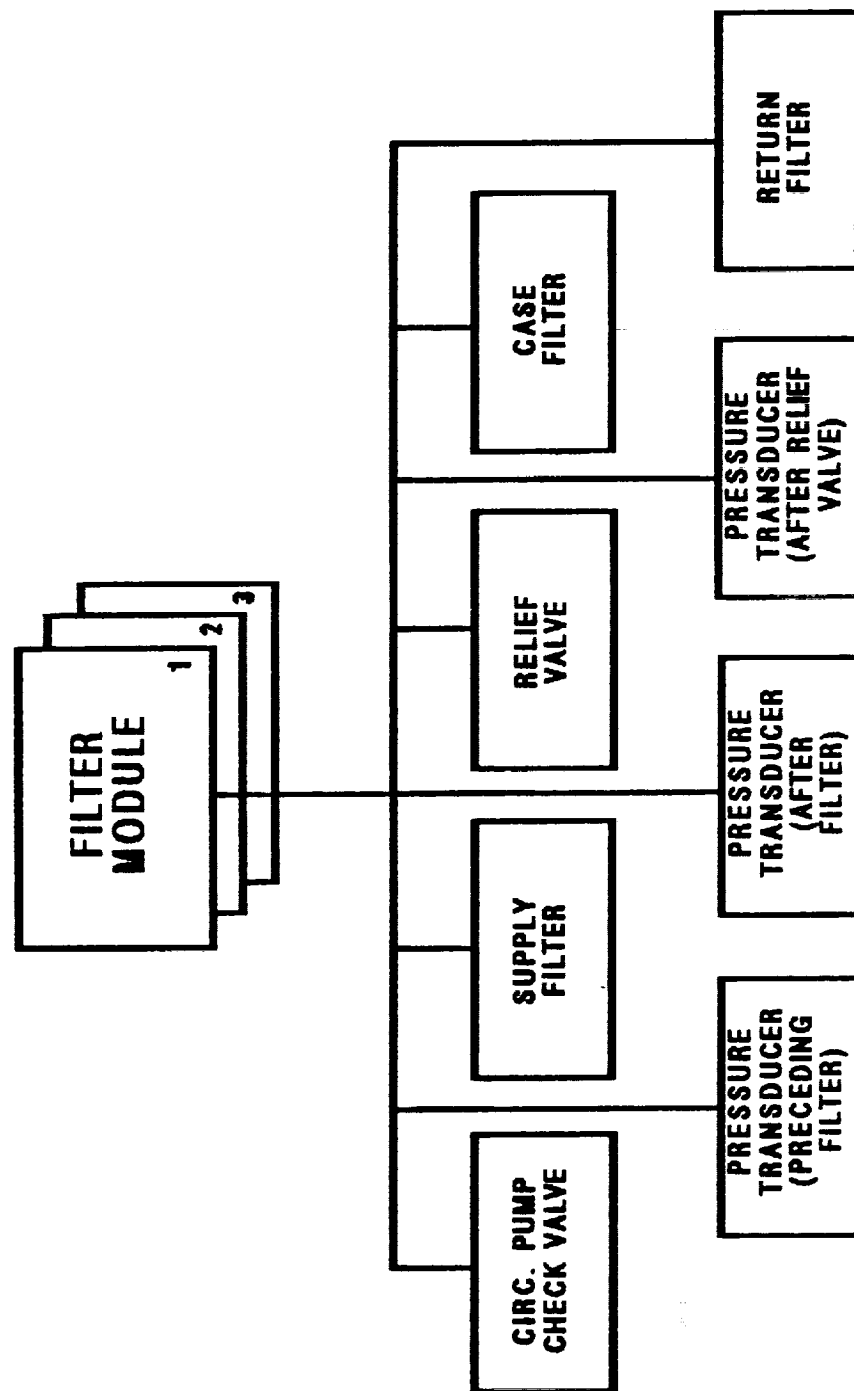


Figure 23 - FILTER MODULE



# FREON HEAT EXCHANGER

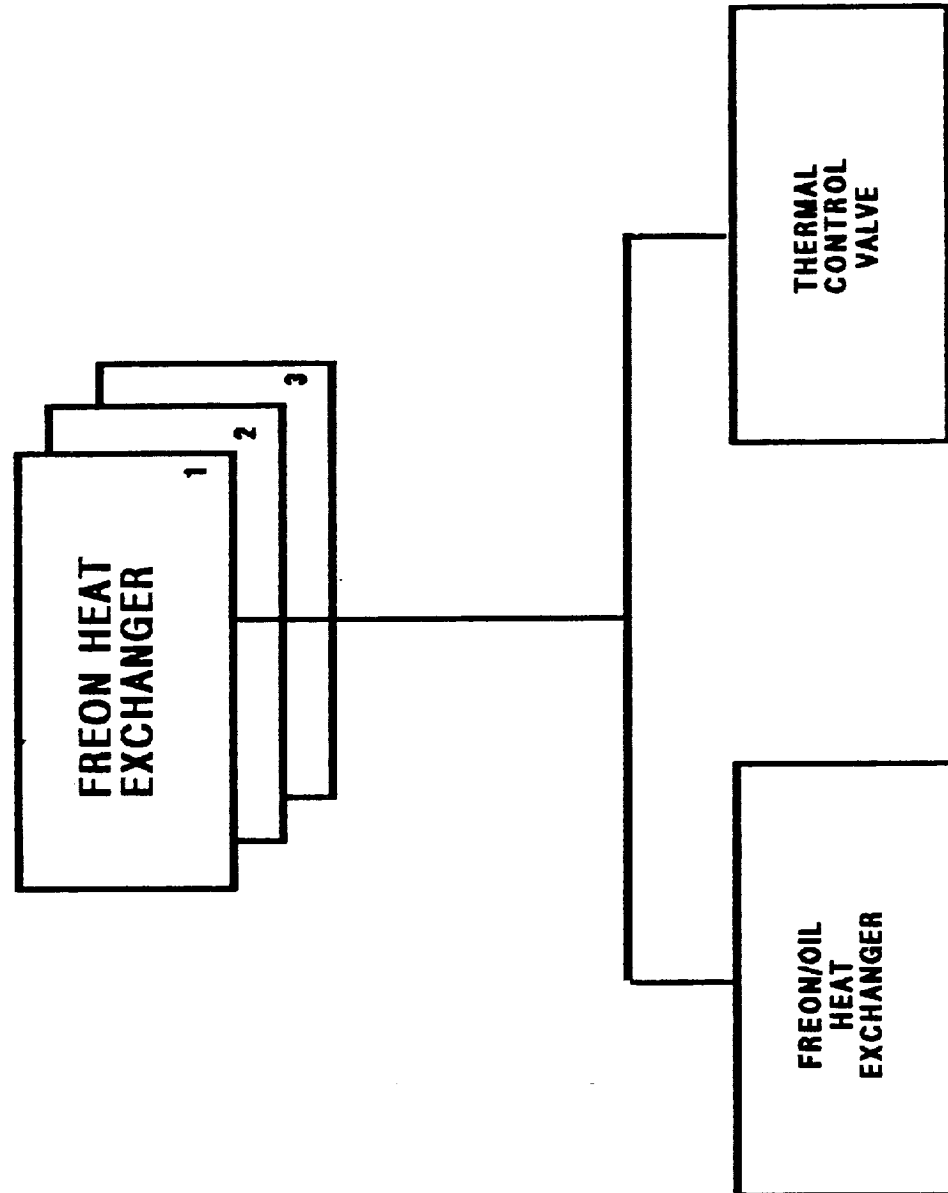


Figure 24 - FREON HEAT EXCHANGER

# EPD&C HYDRAULICS

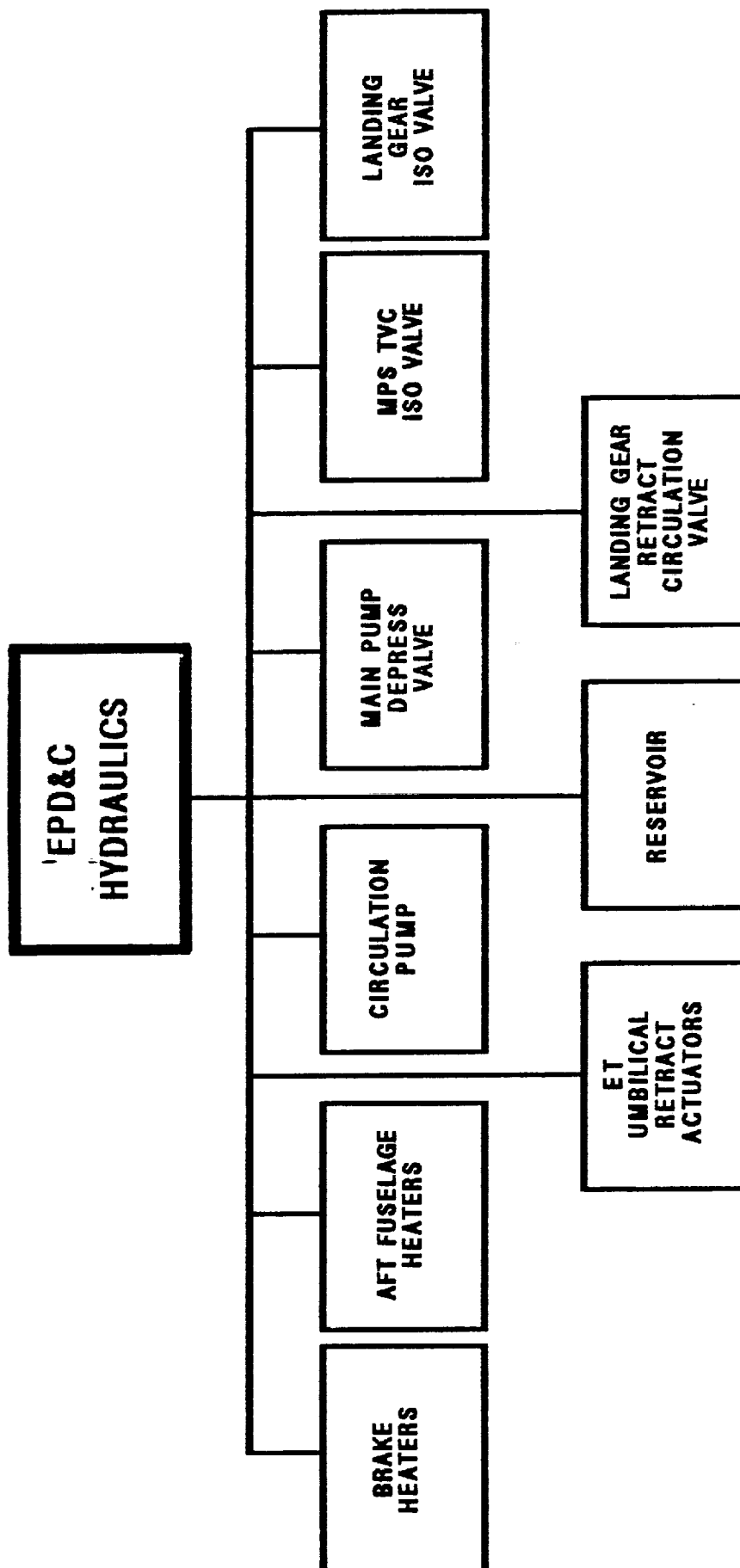


Figure 25 - EPD&C HYDRAULICS

#### 4.0 ASSESSMENT RESULTS

The IOA analysis of the HYD/WSB hardware initially generated 430 failure mode worksheets and identified 166 Potential Critical Items (PCIs) before starting the assessment process. In order to facilitate comparison, 46 additional failure mode analysis worksheets were generated. These analysis results were compared to the proposed NASA Post 51-L baseline of 364 FMEAs (References 11, 12, and 13 as modified by References 14, 15, and 16) and 111 CIL items (References 17, 18, 19, and 20). Most of the discrepancy between the number of IOA and NASA FMEAs can be explained by the different approach used by NASA and IOA to group failure modes. Upon completion of the assessment, 320 of 447 FMEAs were in agreement. Of the 127 that remained, 59 had minor discrepancies that did not affect criticality.

A summary of the quantity of NASA FMEAs assessed, versus the recommended IOA baseline, and any issues identified is presented in Table I.

Table I Summary of IOA FMEA Assessment			
Component	NASA	IOA	Issues
WSB	70	89	13
EPD&C - WSB	93	32	2
HYD	84	179	33
EPD&C - HYD	117	147	20
TOTAL	364	447	68

A summary of the quantity of NASA CIL items assessed, versus the recommended IOA baseline, and any issues identified is presented in Table II.

Table II Summary of IOA CIL Assessment			
Component	NASA	IOA	Issues
WSB	38	46	4
EPD&C - WSB	4	5	2
HYD	48	107	11
EPD&C - HYD	21	25	6
TOTAL	111	183	23

Appendix C presents the detailed assessment worksheets for each failure mode identified and assessed. Appendix D highlights the NASA Critical Items and corresponding IOA worksheet ID. Appendix E contains IOA analysis worksheets supplementing previous analysis results reported in Space Transportation System Engineering and Operations Support (STSEOS) Working Paper No. 1.0-WP-VA86001-20, Analysis of the HYD/WSB, 15 December 1986. Appendix F provides a cross reference between the NASA FMEA and corresponding IOA worksheet(s). IOA recommendations are also summarized.

Table III presents a summary of the IOA recommended failure criticalities for the Post 51-L FMEA baseline. Further discussion of each of these subdivisions and the applicable issues is provided in subsequent paragraphs.

TABLE III Summary of IOA Recommended Failure Criticalities							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
WSB	1	40	0	27	1	21	89
EPD&C - WSB	0	4	0	14	0	12	30
HYD	5	90	0	25	1	58	179
EPD&C - HYD	0	12	0	37	0	99	147
TOTAL	6	146	0	103	2	190	447

Of the failure modes analyzed, 183 were determined to be critical items. A summary of the IOA recommended critical items is presented in Table IV.

TABLE IV Summary of IOA Recommended Critical Items							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
WSB	1	40	0	4	1	0	46
EPD&C - WSB	0	4	0	1	0	0	5
HYD	5	90	0	11	1	0	107
EPD&C - HYD	0	12	0	13	0	0	25
TOTAL	6	146	0	29	2	0	183

The scheme for assigning IOA assessment (Appendix C) and analysis (Appendix E) worksheet numbers is shown in Table V.

Table V IOA Worksheet Numbers	
Component	IOA ID Number (First Three Digits)
WSB	101 Through 174 (e.g., includes 1171)
EPD&C - WSB	175 Through 197
HYD	401 Through 731
EPD&C - HYD	800 Through 950

#### 4.1 Assessment Results - Water Spray Boiler

The assessment between the IOA failure modes and the Post 51-L NASA FMEA baseline, as defined above, identified 13 WSB issues, of which four were CIL issues. Seven of these issues relate to the addition of new FMEAs, two of which would be CIL items. Two issues relate to lowering the criticality of a NASA FMEA, one of which would delete the FMEA from the CIL. Four issues relate to redundancy screen changes, one of which would delete the FMEA from the CIL.

#### 4.2 Assessment Results - EPD&C - Water Spray Boiler

The assessment identified two EPD&C - WSB issues, both of which are CIL issues. One issue related to creating a new FMEA which would be a CIL item. The other relates to deleting a FMEA from the CIL.

#### 4.3 Assessment Results - Hydraulic System

The assessment identified 33 HYD issues, 11 of which are CIL issues. Three of these issues relate to raising the criticality of NASA FMEAs. Twenty-six issues relate to creating new FMEAs, 9 of which would be CIL items. Four issues relate to lowering the criticality of NASA FMEAs, 2 of which would delete the FMEA from the CIL.

#### 4.4 Assessment Results - EPD&C - Hydraulics

The assessment identified 21 EPD&C-HYD issues, 6 of which were CIL issues. Six of these issues relate to raising the criticality of NASA FMEAs. Two issues relate to creating new FMEAs. Ten issues relate to lowering the criticality of NASA FMEAs, 3 of which would delete the FMEA from the CIL. One issue relates to removing a NASA FMEA from the CIL because it does not meet the CIL criteria. One issue relates to changing a redundancy screen which would add the FMEA to the CIL. One issue relates to adding a new FMEA to the CIL.

## 5.0 REFERENCES

Reference documentation available from NASA and Rockwell was used in the analysis. The documentation used included the following:

1. JSC-18341, Mechanical Systems Console Handbook Volume II - Systems Briefs, Rev. A PCN-3, 2-7-86
2. VS70-958109, Integrated System Schematic Hydraulics, Rev. E
3. VS70-958099, Integrated System Schematic Hydraulics, Rev. A, 4-22-82
4. VS70-580996, Schematic-Hydraulic Subsystem, Rev. A, 5-30-85
5. VS70-580999, Schematic-Hydraulic Subsystem, Rev. B, 12-17-84
6. JSC-12770, Shuttle Flight Operations Manual, Volume 9, Auxiliary Power Unit/Hydraulics, Basic, 3-16-81
7. JSC 12820, STS Operational Flight Rules, Final PCN-3, 6-28-85
8. JSC 11174, Space Shuttle Systems Handbook, Rev. C PCN-5, 9-13-85
9. NSTS 22206, Instructions for Preparation of Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL), 10-10-86
10. V58 File III, Orbiter Operations and Maintenance Requirements and Specification Document - Hydraulic Subsystem, 12-16-85
11. STS-82-0021, Orbiter Vehicle Operational Configuration Failure Mode Effects Analysis-Hydraulic Subsystem, 1 March 1982.
12. STS-82-0037, Orbiter Vehicle Operational Configuration Failure Mode Effects Analysis-Active Thermal Control and Water Spray Boiler, Change #2, 28 January 1983.
13. STS-82-0033, Orbiter Vehicle Operational Configuration Failure Mode Effects Analysis-Electrical Power Distribution and Control, Change #2, 28 January 1983.
14. NASA-JSC FMEA and CIL Review Comments for the Hydraulics and Hydraulics EPD&C, 5 March 1986, as redlined.
15. NASA-JSC FMEA and CIL Review Comments for the Water Spray Boiler, 6 January 1986, as redlines.

16. NASA-JSC FMEA and CIL Review Comments for the Water Spray Boiler EPD&C, 2 March 1986, as redlined.
17. RI document 87MA4689, Revised Orbiter Critical Items List (Hydraulics EPD&C), 8 dECEMBER 1987.
18. RI document 87MA4944, Revised Orbiter critical Items List (Hydraulics), 22 December 1987.
19. RI document 88MA0161, Revised Orbiter Critical Items List (Water Spray Boiler), 9 January 1988.
20. RI document 87MA4731, Revised Orbiter Critical Items List (Water Spray Boiler EPD&C), 8 December 1987.





## APPENDIX A ACRONYMS

AC	- Alternating Current
AOA	- Abort Once Around
APU	- Auxiliary Power Unit
ASSY	- Assembly
ATO	- Abort to Orbit
BFS	- Backup Flight System
CIL	- Critical Items List
CIRC	- Circulation
CNTL	- Control
CRIT	- Criticality
CRT	- Cathode Ray Tube
C&W	- Caution and Warning System
DC	- Direct Current
DISTR	- Distribution
DPS	- Data Processing System
DU	- Display Unit
EPD&C	- Electrical Power Distribution and Control
ET	- External Tank
F	- Functional
FA	- Flight Aft
FF	- Flight Forward
FM	- Failure Mode
FMEA	- Failure Mode and Effects Analysis
GFE	- Government Furnished Equipment
GN2	- Gaseous Nitrogen
GPC	- General Purpose Computer
GPM	- Gallons Per Minute
GSE	- Ground Support Equipment
HW	- Hardware
HYD	- Hydraulics
H2O	- Water
IOA	- Independent Orbiter Assessment
JSC	- Johnson Space Center
LCA	- Load Control Assembly
LH2	- Liquid Hydrogen
LO2	- Liquid Oxygen
MDAC	- McDonnell Douglas Astronautics Company
MDM	- Multiplexer/Demultiplexer
MEC	- Main Engine Controller
MN	- Main
MONIT	- Monitoring
MPS	- Main Propulsion System
NA	- Not Applicable
NASA	- National Aeronautics and Space Administration
NSTS	- National Space Transportation System
OMRSD	- Operational Maintenance Requirements and Specifications Document

## ACRONYMS

PBI	- Push Button Indicator
PCA	- Power Control Assembly
PCI	- Potential Critical Item
PSI	- Pounds Per Square Inch
RI	- Rockwell International
RM	- Redundancy Management
RPC	- Remote Power Controller
RTLS	- Return to Launch Site
SM	- Systems Management
SRB	- Solid Rocket Booster
SSME	- Space Shuttle Main Engine
STS	- Space Transportation System
SW	- Software
TAL	- Transatlantic Abort Landing
TD	- Touch Down
TVC	- Thrust Vector Control
WSB	- Water Spray Boiler





## **APPENDIX B**

### **DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

- B.1 Definitions**
- B.2 Project Level Ground Rules and Assumptions**
- B.3 Subsystem-Specific Ground Rules and Assumptions**

**APPENDIX B**  
**DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

**B.1 Definitions**

Definitions contained in NSTS 22206, Instructions For Preparation of FMEA/CIL, 10 October 1986, were used with the following amplifications and additions.

**INTACT ABORT DEFINITIONS:**

RTLS - begins at transition to OPS 6 and ends at transition to OPS 9, post-flight

TAL - begins at declaration of the abort and ends at transition to OPS 9, post-flight

AOA - begins at declaration of the abort and ends at transition to OPS 9, post-flight

ATO - begins at declaration of the abort and ends at transition to OPS 9, post-flight

CREDIBLE (CAUSE) - an event that can be predicted or expected in anticipated operational environmental conditions. Excludes an event where multiple failures must first occur to result in environmental extremes

CONTINGENCY CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

EARLY MISSION TERMINATION - termination of onorbit phase prior to planned end of mission

EFFECTS/RATIONALE - description of the case which generated the highest criticality

HIGHEST CRITICALITY - the highest functional criticality determined in the phase-by-phase analysis

MAJOR MODE (MM) - major sub-mode of software operational sequence (OPS)

MC - Memory Configuration of Primary Avionics Software System (PASS)

MISSION - assigned performance of a specific Orbiter flight with payload/objective accomplishments including orbit phasing and altitude (excludes secondary payloads such as GAS cans, middeck P/L, etc.)

MULTIPLE ORDER FAILURE - describes the failure due to a single cause or event of all units which perform a necessary (critical) function

OFF-NOMINAL CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

OPS - software operational sequence

PRIMARY MISSION OBJECTIVES - worst case primary mission objectives are equal to mission objectives

PHASE DEFINITIONS:

PRELAUNCH PHASE - begins at launch count-down Orbiter power-up and ends at moding to OPS Major Mode 102 (liftoff)

LIFTOFF MISSION PHASE - begins at SRB ignition (MM 102) and ends at transition out of OPS 1 (Synonymous with ASCENT)

ONORBIT PHASE - begins at transition to OPS 2 or OPS 8 and ends at transition out of OPS 2 or OPS 8

DEORBIT PHASE - begins at transition to OPS Major Mode 301 and ends at first main landing gear touchdown

LANDING/SAFING PHASE - begins at first main gear touchdown and ends with the completion of post-landing safing operations

**APPENDIX B**  
**DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

**B.2 IOA Project Level Ground Rules and Assumptions**

The philosophy embodied in NSTS 22206, Instructions for Preparation of FMEA/CIL, 10 October 1986, was employed with the following amplifications and additions.

1. The operational flight software is an accurate implementation of the Flight System Software Requirements (FSSRs).

RATIONALE: Software verification is out-of-scope of this task.

2. After liftoff, any parameter which is monitored by system management (SM) or which drives any part of the Caution and Warning System (C&W) will support passage of Redundancy Screen B for its corresponding hardware item.

RATIONALE: Analysis of on-board parameter availability and/or the actual monitoring by the crew is beyond the scope of this task.

3. Any data employed with flight software is assumed to be functional for the specific vehicle and specific mission being flown.

RATIONALE: Mission data verification is out-of-scope of this task.

4. All hardware (including firmware) is manufactured and assembled to the design specifications/drawings.

RATIONALE: Acceptance and verification testing is designed to detect and identify problems before the item is approved for use.

5. All Flight Data File crew procedures will be assumed performed as written, and will not include human error in their performance.

RATIONALE: Failures caused by human operational error are out-of-scope of this task.



6. All hardware analyses will, as a minimum, be performed at the level of analysis existent within NASA/Prime Contractor Orbiter FMEA/CILs, and will be permitted to go to greater hardware detail levels but not lesser.

RATIONALE: Comparison of IOA analysis results with other analyses requires that both analyses be performed to a comparable level of detail.

7. Verification that a telemetry parameter is actually monitored during AOS by ground-based personnel is not required.

RATIONALE: Analysis of mission-dependent telemetry availability and/or the actual monitoring of applicable data by ground-based personnel is beyond the scope of this task.

8. The determination of criticalities per phase is based on the worst case effect of a failure for the phase being analyzed. The failure can occur in the phase being analyzed or in any previous phase, whichever produces the worst case effects for the phase of interest.

RATIONALE: Assigning phase criticalities ensures a thorough and complete analysis.

9. Analysis of wire harnesses, cables, and electrical connectors to determine if FMEAs are warranted will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

10. Analysis of welds or brazed joints that cannot be inspected will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

11. Emergency system or hardware will include burst discs and will exclude the EMU Secondary Oxygen Pack (SOP), pressure relief valves and the landing gear pyrotechnics.

RATIONALE: Clarify definition of emergency systems to ensure consistency throughout IOA project.

**APPENDIX B**  
**DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

**B.3 HYD/WSB-Specific Ground Rules and Assumptions**

The IOA analysis was performed to the component or assembly level of the HYD/WSB subsystem. The analysis considered the worst case effects of the hardware or functional failure on the subsystem, mission, and crew and vehicle safety.

1. Where redundant systems perform non-identical functions (e.g. hydraulics systems 1 and 2), use worst case system.

RATIONALE: Need to identify worst case effect.

2. Pyro's for lowering landing gears are "unlike redundant" to hydraulic system 1.

RATIONALE: Pyro's are sufficient to lower the landing gear in absence of an interfering hydraulic system 1 failure.

3. In analysis cases where the meaning of hardware item redundancy seems ambiguous, redundancy is understood to mean that there is one or more systems that are redundant to the system in which the hardware item occurs.

RATIONALE: This is the most conservative assumption for purposes of determining criticality.

4. Loss of redundancy means loss of all capability to perform function.

RATIONALE: Maintain uniform usage within project.

5. Caps and fittings for quick disconnects are considered one component.

RATIONALE: This is the most conservative assumption.

6. For purposes of criticality evaluations during aborts, assume SSME induced aborts.

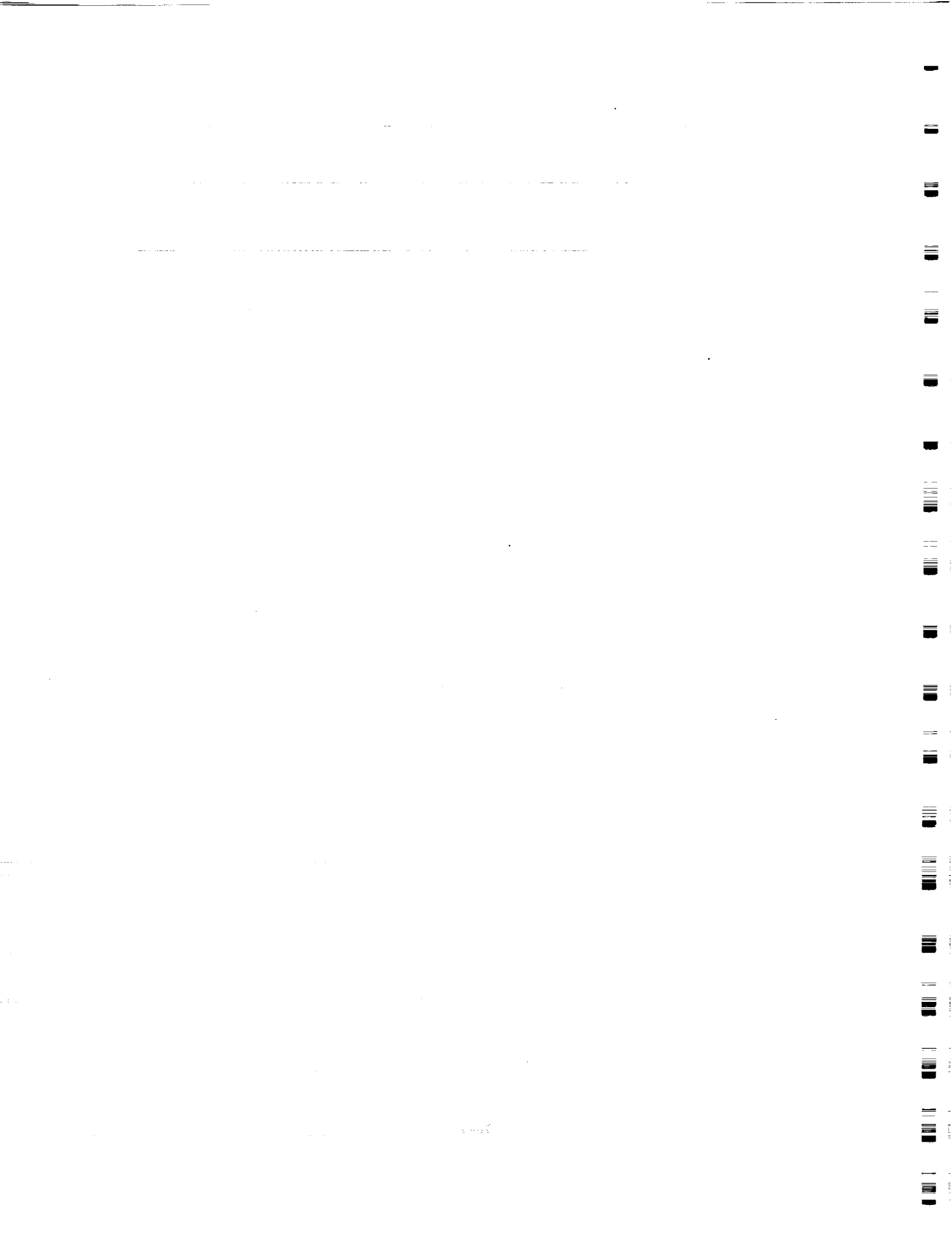
RATIONALE: This is the most conservative assumption.

7. Leaks (GN2, hydraulic fluid, water) are sufficiently prolonged in time to allow recognition and response.

RATIONALE: This assumption allows for non-trivial case analysis.

8. Contamination of all three hydraulic systems during turnaround servicing is not considered a "single credible event" in evaluating Redundancy Screen C.

RATIONALE: This is considered a ground operations problem although the significant number of inflight hydraulic system anomalies attributed to contamination suggests that it should be analyzed independently as a potential cause of critical failure modes. Without this assumption, all hydraulic failure modes that list contamination as a cause would fail screen C.



## APPENDIX C DETAILED ASSESSMENT

This section contains the IOA assessment worksheets generated during the assessment of this subsystem. The information on these worksheets facilitates the comparison of the NASA FMEA/CIL (Pre and Post 51-L) to the IOA detailed analysis worksheets included in Appendix E. Each of these worksheets identifies the NASA FMEA being assessed, corresponding MDAC Analysis Worksheet ID (Appendix E), hardware item, criticality, redundancy screens, and recommendations. For each failure mode, the highest assessed hardware and functional criticality is compared and discrepancies noted as "N" in the compare row under the column where the discrepancy occurred.

### LEGEND FOR IOA ASSESSMENT WORKSHEETS

-----

#### Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

#### Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission

#### Redundancy Screens A, B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

#### NASA Data :

- Baseline = NASA FMEA/CIL
- New = Baseline with Proposed Post 51-L Changes

#### CIL Item :

- X = Included in CIL

#### Compare Row :

- N = Non compare for that column (deviation)

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-101  
NASA FMEA #: 06-3A-0602-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 101  
ITEM: WATER SPRAY BOILER ASSEMBLY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-102  
NASA FMEA #: 06-3A-0618-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 102  
ITEM: WATER SPRAY BOILER ASSEMBLY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-103  
NASA FMEA #: 06-3A-0618-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 103  
ITEM: LINES AND FITTINGS (GN2-WATER)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA COMMENTS. TWO FMEAs ARE REQUIRED TO ADDRESS WATER LEAKAGE (06-3-0618-1) AND GN2 LEAKAGE (06-3-0619-1) INDEPENDENTLY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-103A  
NASA FMEA #: 06-3A-0619-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 103  
ITEM: LINES AND FITTINGS (GN2-WATER)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA COMMENTS. TWO FMEAs ARE REQUIRED TO ADDRESS WATER LEAKAGE (06-3-0618-1) AND GN2 LEAKAGE (06-3-0619-1) INDEPENDENTLY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-104  
NASA FMEA #: 06-3A-0603-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 104  
ITEM: HEAT EXCHANGER ASSEMBLY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS LUBE OIL RESTRICTED FLOW (06-3A-0603-4) AND HYDRAULIC FLUID RESTRICTED FLOW (06-3A-0603-6).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-104A  
NASA FMEA #: 06-3A-0603-6

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 104  
ITEM: HEAT EXCHANGER ASSEMBLY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS LUBE OIL RESTRICTED FLOW (06-3A-0603-4) AND HYDRAULIC FLUID RESTRICTED FLOW (06-3A-0603-6). IOA CONCURS WITH CIL REDUNDANCY SCREEN RATIONALE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-105  
NASA FMEA #: 06-3A-0602-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 105  
ITEM: HEAT EXCHANGER ASSY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS  
HYDRAULIC OIL LEAKAGE (06-3A-0602-3) AND LUBE OIL LEAKAGE (06-3A-  
0602-4).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-105A  
NASA FMEA #: 06-3A-0602-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 105  
ITEM: HEAT EXCHANGER ASSY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS  
HYDRAULIC OIL LEAKAGE (06-3A-0602-3) AND LUBE OIL LEAKAGE (06-3A-  
0602-4).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-106  
NASA FMEA #: 06-3A-0603-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 106  
ITEM: HEAT EXCHANGER ASSY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS LUBE OIL INTERNAL LEAKAGE (06-3A-0603-2) AND HYDRAULIC OIL INTERNAL LEAKAGE (06-3A-0603-5).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-106A  
NASA FMEA #: 06-3A-0603-5

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 106  
ITEM: HEAT EXCHANGER ASSY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA. TWO FMEAs ARE REQUIRED TO ADDRESS LUBE OIL INTERNAL LEAKAGE (06-3A-0603-2) AND HYDRAULIC OIL INTERNAL LEAKAGE (06-3A-0603-5).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-107  
NASA FMEA #: 06-3A-0603-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 107  
ITEM: HEAT EXCHANGER ASSY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-108  
NASA FMEA #: 06-3A-0605-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 108  
ITEM: SPRAY VALVE (WATER SUPPLY)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-109  
NASA FMEA #: 06-3A-0605-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 109  
ITEM: SPRAY VALVE (WATER SUPPLY)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-109A  
NASA FMEA #: 06-3A-0605-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 109  
ITEM: SPRAY VALVE (WATER SUPPLY)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-110  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 110  
ITEM: SPRAY VALVE (WATER SUPPLY)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ ] [ NA ] [ ] [ D ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE IS INCORPORATED AS A "CAUSE" IN FMEA 06-3A-0605-2  
BUT HAS DIFFERENT CRITICALITY BECAUSE SWITCHING TO REDUNDANT  
CONTROLLER RESTORES NORMAL OPERATION. IOA RECOMMENDS A FMEA TO  
RECOGNIZE THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-111  
NASA FMEA #: 06-3-0627-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 111  
ITEM: BOILER TANK TEMP SENSORS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

#111 SAYS AN OPEN CAUSES A COLD READING. NASA SAYS OPEN CAUSES A HOT READING.

NASA FMEA 06-3-0627-1 OPEN OR SENSOR OUT OF TOLERANCE.

SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATION.  
SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-112  
NASA FMEA #: 06-3-0627-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 112  
ITEM: BOILER TANK TEMP SENSORS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA 06-3-0627-1 & 06-3-0627-2 COMBINED.

WE DIFFER ON WHAT READING A SHORT WOULD CAUSE (HOT VS COLD).

SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATION.  
SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-113  
NASA FMEA #: 06-3-0627-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 113  
ITEM: BOILER TANK TEMP SENSORS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA 06-3-0627-1 ERRONEOUS HOT CONDITION AND 06-3-0627-2  
ERRONEOUS COLD CONDITION ARE COMBINED INTO ONE FMEA 06-3-0627-2  
ELECTRICAL SHORT OR SENSOR OUT OF TOLERANCE.  
SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATION.  
SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-114  
NASA FMEA #: 06-3-0611-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 114  
ITEM: BOILER TANK HEATERS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA FMEA 06-3-0611-1 AND 06-3-0621-1 COVER THE OPEN & SHORT  
CONDITIONS - 0611-1 IS A PRIMARY CONTROLLER FMEA.

SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATION.  
SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-114A  
NASA FMEA #: 06-3-0621-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 114  
ITEM: BOILER TANK HEATERS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [ NA ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

NASA FMEA 06-3-0611-1 AND 06-3-0621-1 COVER THE OPEN & SHORT  
CONDITIONS - 0611-1 IS A PRIMARY CONTROLLER FMEA.

SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATION.  
SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-115  
NASA FMEA #: 06-3-0611-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 115  
ITEM: BOILER TANK HEATERS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

CONCUR WITH NASA SCREEN B.

SHORT TO GROUND COVERED BY FMEA 06-3-0611-1 (PRIMARY CONTROLLER).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-116  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 116  
ITEM: STEAM VENT RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO NASA FMEA. THIS FAILURE SHOULD BE RECOGNIZED BY FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-117  
NASA FMEA #: 06-3A-0604-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 117  
ITEM: STEAM DUMP NOZZLE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[    ]	[ NA ]	[    ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERS RAIN GETTING INTO ORIFICE AND SHORTING HTRS.  
#117 DOES NOT CONSIDER RAIN GETTING INTO THE ORFICE WHILE ON PAD.  
#117 CONSIDERS RESTRICTED FLOW TO BE CAUSED BY LOSS OF HEATERS.  
IOA RECOMMENDS THAT "CONTAMINATION" AND "STUCK OR INGESTED BLOW-OFF SETAM VENT PLUG" BE DELETED FROM CAUSES FOR 06-3A-0604-1 AND "STUCK OR INGESTED BLOW-OFF STEAM VENT PLUG" BE INCORPORATED INTO 06-3A-0633-1. THEN, SWITCHING TO REDUNDANT CONTROLLER RESTORES NORMAL OPERATIONS. SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-118  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 118  
ITEM: HYDRAULIC/LUBE OIL WATER FILTERS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO NASA FMEA. THIS FAILURE SHOULD BE RECOGNIZED BY A FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-119  
NASA FMEA #: 06-3-0624-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 119  
ITEM: STEAM DUMP NOZZLE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[   ]
COMPARE	[ / ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [ NA ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

06-3-0624-1 STATES "OPEN" CAUSES HOT SIGNAL - #119 STATES "SHORT  
CAUSES HOT SIGNAL - ERRONEOUS OUTPUT IS THE RESULT IN EITHER  
CASE.

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-120  
NASA FMEA #: 06-3-0624-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 120  
ITEM: STEAM DUMP NOZZLE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

06-3-9624-2 AND #119 DIFFER ON WHAT CAUSES THE HOT AND COLD  
SENSOR OUTPUT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-121  
NASA FMEA #: 06-3-0624-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 121  
ITEM: STEAM DUMP NOZZLE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA COMBINED OPEN (ELECTRICAL) AND OUT OF TOLERANCE, ASSIGNED CRITICALITY 3/1R. A SHORT (ELECTRICAL) AND OUT OF TOLERANCE WERE COMBINED AND ASSIGNED A CRITICALITY OF 3/3. WORKSHEET 110 TREATS OUT OF TOLERANCE DUE TO CALIBRATION SHIFT. SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY. (\*NOTE - #121 SCREENS SHOULD BE A-2, B-NA, C-P).



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-121A  
NASA FMEA #: 06-3-0624-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 121  
ITEM: STEAM DUMP NOZZLE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 /1R ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-122  
NASA FMEA #: 06-3-0622-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 122  
ITEM: STEAM NOZZLE HEATERS

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-123  
NASA FMEA #: 06-3-0617-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 123  
ITEM: BOILER WATER FILL AND DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ F ]	[ F ]	[ P ]	[ ] *
IOA	[ 2 / 1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA FMEA 06-3-0617-3 AND 06-3-0617A-3 CONSIDER CAP & POPPET AS SEPARATE ITEMS - #123 CONSIDERS CAP & POPPET AS ONE ASSEMBLY. IOA CONCURS WITH NASA FMEA CRITICALITIES. HOWEVER, ALL SCREENS SHOULD BE "NA" PER NSTS 22206 DOCUMENT. FMEA 06-3-0617-3 SHOULD ADDRESS POPPET FAILURE. FMEA 06-3-0617A-3 SHOULD ADDRESS CAP FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-123A  
NASA FMEA #: 06-3-0617A-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 123  
ITEM: BOILER WATER FILL AND DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ F ]	[ F ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA 06-3-0617-3 AND 06-3-0617A-3 CONSIDER CAP & POPPET AS SEPARATE ITEMS - #123 CONSIDERS CAP & POPPET AS ONE ASSEMBLY. IOA CONCURS WITH NASA FMEA CRITICALITIES. HOWEVER, ALL SCREENS SHOULD BE "NA" PER NSTS 22206 DOCUMENT. FMEA 06-3-0617-3 SHOULD ADDRESS POPPET FAILURE. FMEA 06-3-0617A-3 SHOULD ADDRESS CAP FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-124  
NASA FMEA #: 06-3-0617-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 124  
ITEM: BOILER H2O DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-125  
NASA FMEA #: 06-3-0616-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 125  
ITEM: LUBE OIL DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-126  
NASA FMEA #: 06-3A-0616-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 126  
ITEM: LUBE OIL DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

NASA FMEA 06-3-0616-2 CONSIDERS POPPET LEAKAGE - INTERNAL TO CAP  
- CAP SEPARATE. IOA CONCURS WITH FMEA 0616-3.

#126 CONSIDERS POPPET & CAP AS AN ASS'Y.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-126A  
NASA FMEA #: 06-3A-0616-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 126  
ITEM: LUBE OIL DRAIN

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

NASA FMEA 06-3-0616-2 CONSIDERS POPPET LEAKAGE - INTERNAL TO CAP  
- CAP SEPARATE. IOA CONCURS WITH FMEA 0616-2.

#126 CONSIDERS POPPET & CAP AS AN ASS'Y.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-127  
NASA FMEA #: 06-3-0632-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 127  
ITEM: LIQUID LEVEL SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-128  
NASA FMEA #: 06-3-0632-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 128  
ITEM: LIQUID LEVEL SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ F ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[    ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[ NA ]	[    ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

ALL SCREENS SHOULD BE "NA" FOR 3/3 CRITICALITY PER 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-129  
NASA FMEA #: 06-3-0632-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 129  
ITEM: LIQUID LEVEL SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-129A  
NASA FMEA #: 06-3-0632-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 129  
ITEM: LIQUID LEVEL SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ /N ]	[ N ]	[    ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA CONCURS WITH NASA ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-130  
NASA FMEA #: 06-3-0629-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 130  
ITEM: LUBE OIL TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 06-3-0629-1 SAYS HOT SIGNAL CAUSED BY OPEN. 130 SAYS SHORT CAUSES HOT SIGNAL.

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-131  
NASA FMEA #: 06-3-0629-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 131  
ITEM: LUBE OIL TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ P ]    [ NA ]    [    ]    [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 06-3-0629-2 STATES COLD CAUSED BY SHORT. #131 STATES COLD CAUSED BY OPEN. IOA EVALUATION IS BASED ON SHUTTLE SYSTEMS HANDBOOK, VOL 2, DWG 12.4, REV C5. TEMP SENSOR FAILURE WOULD BE RECOGNIZED PRIOR TO LIFTOFF.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-132  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 132  
ITEM: WATER TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 1 /1 ]	[ NA]	[ NA]	[ NA]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

H2O TANK DOES NOT QUALIFY AS PRESSURE VESSEL PER NSTS 22206, PARA 2.1.r.3. MDAC ID #132 SHOULD BE DELETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-133  
NASA FMEA #: 06-3A-0608-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 133  
ITEM: WATER TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-134  
NASA FMEA #: 06-3A-0608-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 134  
ITEM: WATER TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[ / ]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-134A  
NASA FMEA #: 06-3A-0608-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 134  
ITEM: WATER TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-135  
NASA FMEA #: 06-3-0613-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 135  
ITEM: WATER TANK FILL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-136  
NASA FMEA #: 06-3A-0613-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 136  
ITEM: WATER TANK FILL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA CONSIDERS POPPET & CAP AS TWO SEPARATE ASSEMBLIES. #136  
CONSIDERS THEM AS ONE. IOA CONCURS WITH FMEA'S 06-3-0613-2 AND -  
3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-136A  
NASA FMEA #: 06-3A-0613-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 136  
ITEM: WATER TANK FILL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[ N ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA CONSIDERS POPPET & CAP HAS TWO SEPARATE ASSEMBLIES. - #136  
CONSIDERS THEM AS ONE. IOA CONCURS WITH FMEA'S 06-3-0613-2 AND -  
3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-137  
NASA FMEA #: 06-3-0620-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 137  
ITEM: WATER TANK HEATER

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FMEA 06-3-0611-1 ALSO COVERS THIS FAILURE (CONTROLLER).

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-138  
NASA FMEA #: 06-3-0620-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 138  
ITEM: WATER TANK HEATER

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 06-3-0611-1 ALSO COVERS THIS FAILURE (CONTROLLER).

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-139  
NASA FMEA #: 06-3-0626-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 139  
ITEM: WATER TANK TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[   /   ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

WE DIFFER WITH NASA ON THE CAUSES OF THE HOT AND COLD READINGS  
(OPEN OR SHORT).



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-140  
NASA FMEA #: 06-3-0626-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 140  
ITEM: WATER TANK TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

WE DIFFER ON THE OPEN OR SHORT CAUSING THE HOT AND COLD READINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-141  
NASA FMEA #: 06-3-0626-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 141  
ITEM: WATER TANK TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-142  
NASA FMEA #: 06-3A-0609-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 142  
ITEM: GN2 TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ] *
IOA	[ 1 / 1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-143  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 143  
ITEM: GN2 TANK

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FMEA 06-3-0609-2 DELETED BY NASA. COMBINED WITH 06-3-0609-1.  
IOA RECOMMENDS THAT FMEA 06-3-0609-2 BE RETAINED. THE FAILURE  
MODE OF FMEA 06-3-0609-2 (EXTERNAL LEAK) IS DIFFERENT IN NATURE  
FROM THAT OF FMEA 06-3-0609-1 (RUPTURE).

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-144  
NASA FMEA #: 06-3A-0607-4

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 144  
ITEM: GN2 REGULATOR VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-145  
NASA FMEA #: 06-3A-0607-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 145  
ITEM: GN2 REGULATOR VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-146  
NASA FMEA #: 06-3A-0607-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 146  
ITEM: GN2 REGULATOR RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-147  
NASA FMEA #: 06-3-0607-5

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 147  
ITEM: GN2 REGULATOR RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH NASA ASSESSMENT. DAMAGE TO ADJACENT WATER TANK  
RAISES CRITICALITY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-148  
NASA FMEA #: 06-3A-0606-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 148  
ITEM: GN2 SHUTOFF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-149  
NASA FMEA #: 06-3A-0606-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 149  
ITEM: GN2 SHUTOFF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ /2R ]      [ P ]      [ F ]      [ P ]      [ X ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

GN2 REGULATOR VALVE IN SERIES WOULD REGULATE PRESSURE TO H2O TANK  
- REQUIRES SECOND FAILURE TO CAUSE POSSIBLE LOSS OF ONE HYDRAULIC  
SYSTEM. NSTS 22206 INDICATES FUNCTIONAL CRITICALITY OF 2R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-150  
NASA FMEA #: 06-3A-0606-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 150  
ITEM: GN2 SHUTOFF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-151  
NASA FMEA #: 06-3-0615-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 151  
ITEM: GN2 FILL DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-152  
NASA FMEA #: 06-3A-0615-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 152  
ITEM: GN2 FILL DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[ N ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA CONSIDERS CAP & POPPET AS TWO ASSEMBLIES. #152 CONSIDERED THEM AS ONE. IOA CONCURS WITH NASA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-152A  
NASA FMEA #: 06-3A-0615-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 152  
ITEM: GN2 FILL DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FMEA CONSIDERS CAP & POPPET AS TWO ASSEMBLIES. IOA CONSIDERED THEM AS ONE. IOA CONCURS WITH FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-153  
NASA FMEA #: 06-3-0614-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 153  
ITEM: GN2 VENT DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-154  
NASA FMEA #: 06-3A-0614-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 154  
ITEM: GN2 VENT DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FMEA CONSIDERS CAP AND POPPET AS TWO SEPARATE ITEMS. #154  
CONSIDERS THEM AS ONE. IOA CONCURS WITH FMEAs 06-3A-0614-3 AND -  
2.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: HYDWSB-154A  
NASA FMEA #: 06-3A-0614-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 154  
ITEM: GN2 VENT DISCONNECT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA CONSIDERS CAP AND POPPET AS TWO SEPARATE LINES. #154  
CONSIDERS THEM AS ONE. IOA CONCURS WITH FMEAs 06-3A-0614-3 AND -  
2.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB=155  
NASA FMEA #: 06-3-0625-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 155  
ITEM: GN2 TANK TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-156  
NASA FMEA #: 06-3-0625-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 156  
ITEM: GN2 TANK TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-157  
NASA FMEA #: 06-3-0631-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 157  
ITEM: GN2 TANK PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-158  
NASA FMEA #: 06-3-0631-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 158  
ITEM: GN2 TANK PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-159  
NASA FMEA #: 06-3-0631-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 159  
ITEM: GN2 TANK PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-160  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 160  
ITEM: GN2 REGULATOR OUT PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO NASA FMEA. THIS PRESSURE IS USED IN WATER QUANTITY  
CALCULATION AND THE FAILURE SHOULD BE RECOGNIZED BY A FMEA WHICH  
INCORPORATES MDAC ID'S 160, 161, 162, & 163.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-161  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 161  
ITEM: GN2 REGULATOR PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO NASA FMEA. SEE MDAC ID #160.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-162  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 162  
ITEM: GN2 REGULATOR PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO NASA FMEA. SEE MDAC ID #160.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-163  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 163  
ITEM: GN2 REGULATOR PRESSURE SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO NASA FMEA. SEE MDAC ID #160.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-164  
NASA FMEA #:

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 164  
ITEM: GN2 FILTER

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

NO NASA FMEA - THIS FAILURE SHOULD BE RECOGNIZED BY A FMEA. OMS  
SUBSYSTEM HAS FAILURE INCIDENTS THAT SUPPORT THIS AS A CREDIBLE  
FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-165  
NASA FMEA #: 06-3-0610-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 165  
ITEM: HYDRAULIC BYPASS VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-166  
NASA FMEA #: 06-3A-0610-5

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 166  
ITEM: HYDRAULIC BYPASS VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-167  
NASA FMEA #: 06-3A-0610-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 167  
ITEM: HYDRAULIC BYPASS VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-168  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 168  
ITEM: HYRAULIC RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-169  
NASA FMEA #: 06-3A-0610-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 169  
ITEM: HYDRAULIC RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-170  
NASA FMEA #: 06-3A-0610-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 170  
ITEM: HYDRAULIC RELIEF VALVE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA DID NOT CONSIDER EFFECTS OF HIGH DEMANDS DURING ENTRY.  
AGREES WITH NASA ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-171  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 171  
ITEM: HYDRAULIC BYPASS VALVE MOTOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO NASA FMEA. FMEA 03-6-0610-1 AND -2 SHOULD BE EXPANDED SO  
"CAUSES" INCLUDES BYPASS VALVE MOTOR FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-172  
NASA FMEA #: 06-3-0628-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 172  
ITEM: HYDRAULIC BYPASS/RELIEF VALVE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ F ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ / ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [ NA ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-173  
NASA FMEA #: 06-3-0628-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 173  
ITEM: HYDRAULIC BYPASS/RELIEF VALVE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ / ]	[ N ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-174  
NASA FMEA #: 06-3-0628-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 174  
ITEM: HYDRAULIC BYPASS/RELIEF VALVE TEMP SENSOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B IS NOT APPLICABLE TO STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-175  
NASA FMEA #: 05-6W-2021-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 175  
ITEM: CB

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-176  
NASA FMEA #: 05-6W-2129-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 176  
ITEM: BY-PASS RELAY

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-177  
NASA FMEA #: 05-6WA-2051-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 177  
ITEM: BOILER CONTROL POWER/HEATER SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY. IOA ASSUMED CONTACTS FOR ONE SWITCH POSITION FAILED. NASA ASSUMED ALL CONTACTS IN SWITCH FAILED (I.E., CAN'T TOGGLE SWITCH TO CONTROLLER "A" OR "B". IOA CONCURS WITH NASA ASSESSMENT.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-178  
NASA FMEA #: 05-6WA-2051-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 178  
ITEM: BOILER CONTROL POWER/HEATER SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ NA ]	[ ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

SCREEN B IS NOT APPLICABLE FOR STANDBY REDUNDANCY.  
IOA ASSUMED CONTACTS FOR ONE SWITCH POSITION FAILED. NASA  
ASSUMED ALL CONTACTS IN SWITCH FAILED (I.E., CAN'T TOGGLE SWITCH  
TO CONTROLLER "A" OR "B"). IOA CONCURS WITH NASA ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-179  
NASA FMEA #: 05-6WA-2054-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 179  
ITEM: BOILER CNTRL SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 05-6W-2054-2 COMBINED WITH 2054-1 SINCE BOTH FAILURES HAD THE SAME EFFECT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-180  
NASA FMEA #: 05-6WA-2054-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 180  
ITEM: BOILER CNTRL SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-181  
NASA FMEA #: 05-6W-2088-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 181  
ITEM: RESISTOR-CURRENT LIMITER (5.1K, 3/4W)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-182  
NASA FMEA #: 05-6W-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 182  
ITEM: RESISTOR-VOLTAGE DIVIDER (12K, 1/4W)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
SCREENS SHOULD BE "NA" PER 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-183  
NASA FMEA #: 05-6W-2086-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 183  
ITEM: RESISTOR-CURRENT LIMITER

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/87  
ASSESSMENT ID: HYDWSB-183A  
NASA FMEA #: 05-6W-2086-1C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 183  
ITEM: RESISTOR-CURRENT LIMITER

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-184  
NASA FMEA #: 05-6W-2055-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 184  
ITEM: BOILER N2 SUPPLY SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-185  
NASA FMEA #: 05-6W-2055-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 185  
ITEM: BOILER N2 SUPPLY SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-186  
NASA FMEA #: 05-6W-2208-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 186  
ITEM: HYBRID DRIVER CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-186A  
NASA FMEA #: 05-6W-2208-1C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: - 186  
ITEM: HYBRID DRIVER CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-187  
NASA FMEA #: 05-6W-2208-1D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 187  
ITEM: HYBRID DRIVER CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-188  
NASA FMEA #: 05-6G-2179-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 188  
ITEM: RPC

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-189  
NASA FMEA #: 05-6W-2179-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 189  
ITEM: RPC

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

THERMOSTATS ARE UNLIKE REDUNDANT TO RPC'S FOR THIS FAILURE. IOA CONCURS WITH NASA ASSESSMENT. WATER TANK BURNTHROUGH SEEMS NON-CREDIBLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-190  
NASA FMEA #: 05-6W-2259-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 190  
ITEM: ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-191  
NASA FMEA #: 05-6W-2259-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 191  
ITEM: ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-191A  
NASA FMEA #: 05-6W-2259A-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 191  
ITEM: ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-192  
NASA FMEA #: 06-3-0611-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 192  
ITEM: CONTROLLER A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-193  
NASA FMEA #: 06-3-0611-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 193  
ITEM: CONTROLLER A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [ NA ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

FMEA 06-3-0611-2 WAS COMBINED WITH 06-3-0611-1.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-194  
NASA FMEA #: 06-3-0612-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 194  
ITEM: CONTROLLER B

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-195  
NASA FMEA #: 06-3-0612-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 195  
ITEM: CONTROLLER B

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [ NA ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 06-3-0612-2 WAS COMBINED WITH 06-3-0612-1.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-196  
NASA FMEA #:

NASA DATA:  
BASELINE [ X ]  
NEW [ ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 196  
ITEM: HYBRID DRIVER CIRCUIT (CONTROLLER)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

HYDWSB-196 IS A SUBSET OF 192 AND 194. IT SHOULD BE DELETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-197  
NASA FMEA #:

NASA DATA:  
BASELINE [ X ]  
NEW [ ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 197  
ITEM: HYBRID DRIVER CIRCUIT (CONTROLLER)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE HAS THE SAME EFFECT AS FMEA 05-6WA-2055-2 AND SHOULD BE RECOGNIZED BY A FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-401  
NASA FMEA #: 02-6-E24-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 401  
ITEM: ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FMEA 02-6-E24-1 INCORPORATES MDAC ID'S 401 AND 412. NASA CRITICALITY REFLECTS WORST CASE SCENARIO, I.E., INSTANTANEOUS LOSS OF GN2 PRESSURE. CREW GETS SM ALERT IF ACCUM. GN2 PRESSURE DROPS BELOW 1900 PSIA - CIRC PUMP SWITCHES ARE PLACED IN "GPC" POSITION APPROXIMATELY 2 1/2 HOURS INTO MISSION. THIS ACTIVATES SOFTWARE THAT WILL AUTOMATICALLY TURN ON CIRC PUMP IF ACCUM. GN2 PRESSURE DROPS BELOW 1960 PSIA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-402  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 402  
ITEM: ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-403  
NASA FMEA #: 02-6-E24-5

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 403  
ITEM: ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-404  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 404  
ITEM: ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE SHOULD BE DELETED. IT IS NOT A CREDIBLE FAILURE IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-405  
NASA FMEA #: 02-6-E24-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 405  
ITEM: PRESSURE GAGE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E24-4 INCORPORATES MDAC ID'S 405 AND 406.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-406  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 406  
ITEM: PRESSURE GAGE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E24-4 INCORPORATES MDAC ID'S 405 AND 406.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-407  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 407  
ITEM: RELIEF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS A FMEA BE PREPARED TO RECOGNIZE THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-408  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 408  
ITEM: RELIEF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE IS NOT SUFFICIENTLY SIGNIFICANT TO NEED A FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-409  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 409  
ITEM: GN2 PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ] [ NA] [ NA] [ NA] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THERE IS NO NASA FMEA ADDRESSING ACCUMULATOR GN2 PRESSURE TRANSDUCER FAILURES. A FMEA SHOULD BE PREPARED COVERING THESE TRANSDUCERS SIMILAR TO FMEA 02-6-A16-4 FOR SSME ACCUMULATORS. THIS NEW FMEA SHOULD INCORPORATE MDAC ID'S 409, 410 AND 411 IN THE SAME MANNER THAT FMEA 02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.  
GN2 PRESSURES ARE MONITORED BY C&W SYSTEM AND ACCUM. PRESSURE CONTROL SOFTWARE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-410  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 410  
ITEM: GN2 PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THERE IS NO NASA FMEA ADDRESSING ACCUMULATOR GN2 PRESSURE TRANSDUCER FAILURES. A FMEA SHOULD BE PREPARED COVERING THESE TRANSDUCERS SIMILAR TO FMEA 02-6-A16-4 FOR SSME ACCUMULATORS. THIS NEW FMEA SHOULD INCORPORATE MDAC ID'S 409, 410 AND 411 IN THE SAME MANNER THAT FMEA 02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.  
GN2 PRESSURES ARE MONITORED BY C&W SYSTEM AND ACCUM. PRESSURE CONTROL SOFTWARE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-411  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 411  
ITEM: GN2 PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THERE IS NO NASA FMEA ADDRESSING ACCUMULATOR GN2 PRESSURE TRANSDUCER FAILURES. A FMEA SHOULD BE PREPARED COVERING THESE TRANSDUCERS SIMILAR TO FMEA 02-6-A16-4 FOR SSME ACCUMULATORS. THIS NEW FMEA SHOULD INCORPORATE MDAC ID'S 409, 410 AND 411 IN THE SAME MANNER THAT FMEA 02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.  
GN2 PRESSURES ARE MONITORED BY C&W SYSTEM AND ACCUM. PRESSURE CONTROL SOFTWARE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-412  
NASA FMEA #: 02-6-E24-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 412  
ITEM: GN2 FILL VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E24-1 INCORPORATES MDAC ID'S 401 AND 412. NASA  
CRITICALITY REFLECTS WORST CASE SCENARIO, I.E, INSTANTANEOUS LOSS  
OF GN2 PRESSURE.  
CREW GETS SM ALERT IF ACCUM. GN2 PRESSURE DROPS BELOW 1900 PSIA.  
CIRC PUMP SWITCHES ARE PLACED IN "GPC" POSITION APPROX. 2 1/2  
HOURS INTO MISSION. THIS ACTIVATES SOFTWARE THAT WILL  
AUTOMATICALLY TURN ON CIRC PUMP IF ACCUM. GN2 PRESSURE DROPS  
BELOW  
1960 PSIA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-413  
NASA FMEA #: 02-6-A16-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 413  
ITEM: SSME ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FMEA 02-6-A16-1 INCORPORATES MDAC ID'S 413 AND 416.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-414  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 414  
ITEM: SSME ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-415  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 415  
ITEM: SSME ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE (MDAC ID 415) BE DELETED. IT IS NOT A CREDIBLE FAILURE IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-416  
NASA FMEA #: 02-6-A16-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 416  
ITEM: GN2 FILL VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-A16-1 INCORPORATES MDAC ID'S 413 AND 416.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-417  
NASA FMEA #: 02-6-A16-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 417  
ITEM: SSME ACCUMULATOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-421  
NASA FMEA #: 02-6-A16-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 421  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA -02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-422  
NASA FMEA #: 02-6-A16-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 422  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA -02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-423  
NASA FMEA #: 02-6-A16-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 423  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA -02-6-A16-4 INCORPORATES MDAC ID'S 421, 422, AND 423.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-424  
NASA FMEA #: 02-6-A16-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 424  
ITEM: GN2 PRESSURE GAGE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FMEA 02-6-A16-2 INCORPORATES MDAC ID'S 424 AND 425.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-425  
NASA FMEA #: 02-6-A16-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 425  
ITEM: GN2 PRESSURE GAGE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-A16-2 INCORPORATES MDAC ID'S 424 AND 425.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-426  
NASA FMEA #: 02-6-E29-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 426  
ITEM: AC INDUCTION MOTOR

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E29-1 INCORPORATES THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-427  
NASA FMEA #: 02-6-E29-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 427  
ITEM: INVERTER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

FMEA 02-6-E29-1 INCORPORATES THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-428  
NASA FMEA #: 02-6-E29-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 428  
ITEM: LOW PRESS PUMP

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E29-1 INCORPORATES THIS FAILURE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-429  
NASA FMEA #: 02-6-E29-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 429  
ITEM: HI PRESS PUMP

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E29-1 INCORPORATES THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-430  
NASA FMEA #: 02-6-E29-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 430  
ITEM: PRESS ACTIVATED RELIEF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE "CAUSES" OF FMEA 02-6-E29-1 SHOULD BE EXPANDED TO INCORPORATE THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-431  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 431  
ITEM: PRESS ACTIVATED RELIEF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]    [ F ]    [ P ]    [ P ]    [ A ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT A FMEA BE WRITTEN TO COVER THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-432  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 432  
ITEM: BLEED VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-433  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 433  
ITEM: PRESS ACTUATED CONTROL VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE, MDAC ID #433, SHOULD BE DELETED. IT IS REDUNDANT TO FAILURES 440 AND 442.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-434  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 434  
ITEM: PRESS ACTUATED CONTROL VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-435  
NASA FMEA #: 02-6-E27-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 435  
ITEM: PILOT VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-E27-1 INCORPORATES THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-436  
NASA FMEA #: 02-6-E27-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 436  
ITEM: PILOT VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE IS INCORPORATED IN FMEA 02-6-E27-3.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-437  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 437  
ITEM: PILOT VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
THIS FAILURE (MDAC ID #437) SHOULD BE DELETED. IT REQUIRES TWO FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-438  
NASA FMEA #: 02-6-E27-4

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 438  
ITEM: FILTER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-439  
NASA FMEA #: 02-6-E27

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 439  
ITEM: FILTER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS FMEA TO COVER THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-440  
NASA FMEA #: 02-6-E27-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 440  
ITEM: PRESS. ACTIVATED BYPASS VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE (MDAC ID #440) SHOULD BE COMBINED WITH MDAC ID #442.  
THE EFFECTS ARE THE SAME.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-441  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 441  
ITEM: PRESS. ACTIVATED BYPASS VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE, MDAC ID #441, SHOULD BE DELETED. IT IS HIGHLY IMPROBABLE AND HAS NEGLIGIBLE EFFECT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-442  
NASA FMEA #: 02-6-E27-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 442  
ITEM: PRESS. ACTIVATED BYPASS VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE SHOULD BE COMBINED WITH MDAC ID #440. THE EFFECTS ARE THE SAME.  
NASA REVIEW DELETED FMEA 02-6-E27-3. THIS FMEA SHOULD BE RETAINED AND "CAUSES" EXPANDED TO COVER ALL CAUSES OF LEAKAGE FROM CIRC. PUMP OUTPUT TO SYSTEM LINES WHEN FLOW IS REQUIRED TO PRESSURIZE ACCUMULATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-443  
NASA FMEA #: 02-6-E27-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 443  
ITEM: CHECK VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-444  
NASA FMEA #: 02-6-E26-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 444  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-445  
NASA FMEA #: 02-6-E26-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 445  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-446  
NASA FMEA #: 02-6-SYSTEM-4

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 446  
ITEM: TEMPERATURE TRANSDUCERS NOT USED FOR CIRC PUMP  
TEMPERATURE CONTROL

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-447  
 NASA FMEA #: 02-6-SYSTEM-5

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 447  
 ITEM: TEMPERATURE TRANSDUCERS MONITORED BY FDA AND  
 USED FOR CIRC PUMP TEMPERATURE CONTROL

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-448  
NASA FMEA #: 02-6-E02-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 448  
ITEM: QUICK DISCONNECTS-GROUND SERVICING (RETURN)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE A SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. MDAC ANALYSIS SHEETS 448 AND 449 SHOULD BE REWRITTEN TO ANALYZE BOTH THE QUICK DISCONNECT AND CAP. THE FLIGHT CRITICALITIES THEN BECOME 3/1R. THE SUPPLY AND RETURN LINE QD'S HAVE DIFFERENT LEVELS OF REDUNDANCY BECAUSE OF A CHECK VALVE IN THE SUPPLY LINE. NASA FMEA'S SHOULD REFLECT THIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-448A  
NASA FMEA #: 02-6-E02-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 448  
ITEM: QUICK DISCONNECTS-GROUND SERVICING (RETURN)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE A SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. MDAC ANALYSIS SHEETS 448 AND 449 SHOULD BE REWRITTEN TO ANALYZE BOTH THE QUICK DISCONNECT AND CAP. THE FLIGHT CRITICALITIES THEN BECOME 3/1R. THE CAP SHOULD BE CONSIDERED "STANDBY REDUNDANT". THE SUPPLY AND RETURN LINE QD'S HAVE DIFFERENT LEVELS OF REDUNDANCY BECAUSE OF A CHECK VALVE IN THE SUPPLY LINE. NASA FMEA'S SHOULD REFLECT THIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-449  
NASA FMEA #: 02-6-E02-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 449  
ITEM: QUICK DISCONNECT-GROUND SERVICING (SUPPLY)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE A SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. MDAC ANALYSIS SHEETS 448 AND 449 SHOULD BE REWRITTEN TO ANALYZE BOTH THE QUICK DISCONNECT AND CAP. THE SUPPLY AND RETURN LINE QD'S HAVE DIFFERENT LEVELS OF REDUNDANCY. NASA FMEA'S SHOULD REFLECT THIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-449A  
NASA FMEA #: 02-6-E02-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 449  
ITEM: QUICK DISCONNECT-GROUND SERVICING (SUPPLY)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE A SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. MDAC ANALYSIS SHEETS 448 AND 449 SHOULD BE REWRITTEN TO ANALYZE BOTH THE QUICK DISCONNECT AND CAP. THE SUPPLY AND RETURN LINE QD'S HAVE DIFFERENT LEVELS OF REDUNDANCY. NASA FMEA'S SHOULD REFLECT THIS. THE CAP SHOULD BE CONSIDERED "STANDBY REDUNDANT".

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-450  
NASA FMEA #: 02-6-C08-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 450  
ITEM: QUICK DISCONNECT-HYD. GROUND POWER SUPPLY-  
LANDING GEAR STOW/DEPLOY

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [ X ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. THE ANALYSIS SHEET (MDAC ID 450 SHOULD BE REWRITTEN TO ANALYZE BOTH QUICK DISCONNECT AND CAP. THE CRITICALITIES THEN BECOME 3/1R.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-450A  
NASA FMEA #: 02-6-C08-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 450  
ITEM: QUICK DISCONNECT-HYD. GROUND POWER SUPPLY-  
LANDING GEAR STOW/DEPLOY

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[ N ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [ NA ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [ X ]

## REMARKS:

IOA FOR HYDRAULICS/WATER SPRAY BOILER ASSUMED THAT QUICK DISCONNECTS AND CAPS WERE SINGLE UNIT FOR ANALYSIS PURPOSES. THE NASA ASSUMPTION THAT THEY ARE REDUNDANT ITEMS IS MORE REALISTIC. THE ANALYSIS SHEET (MDAC ID 450 SHOULD BE REWRITTEN TO ANALYZE BOTH QUICK DISCONNECT AND CAP. THE CRITICALITIES THEN BECOME 3/1R. THE CAP SHOULD BE CONSIDERED "STANDBY REDUNDANT".

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-451  
NASA FMEA #: 02-6-A02-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 451  
ITEM: QUICK DISCONNECT-HYD/SSME (SUPPLY)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA CRITICALITY BASED ON SINGLE FAILURE TO DISCONNECT. IF NASA'S POSITION THAT THIS FAILURE IS CRIT 3 IS VALID THEN FMEA 02-6-A02-1 CRITICALITY SHOULD BE DOWNGRADED TO 2/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-451A  
NASA FMEA #: 02-6-A02-12

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 451  
ITEM: QUICK DISCONNECT-HYD/SSME (SUPPLY)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-452  
NASA FMEA #: 02-6-A02-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 452  
ITEM: QUICK DISCONNECT-HYD/SSME (RETURN)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ NA]	[ NA]	[ NA]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

AGREE WITH NASA CRITICALITIES AND EFFECTS BASED ON DISCUSSION WITH JERRY BORRER/DF65.  
IOA CRITICALITY BASED ON SINGLE FAILURE TO DISCONNECT. IF NASA'S POSITION THAT FAILURE 02-6-A02-2 IS CRIT 3 IS VALID; THEN FMEA 02-6-A02-1 CRITICALITY SHOULD BE DOWNGRADED TO 2/1R.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-454  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 454  
ITEM: QUICK DISCONNECT-HYD/SSME (RETURN)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-455  
NASA FMEA #: 02-6-A07-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 455  
ITEM: CHECK VALVE-RETURN LINE FROM ENG'S/ACT'S

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ NA]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ /N ]	[ N ]	[ ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ D ] (ADD/DELETE)
----------	-------	-------	-------	-----------------------

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

IOA CONSIDERS A 3/3 CRITICALITY TO BE CONSISTENT WITH THE 22206 DOCUMENT. WE RECOMMEND DOWNGRADING THE CRITICALITY TO 3/3 THEREBY REMOVING THIS FMEA FROM THE CIL.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-456  
NASA FMEA #: 02-6-A07-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 456  
ITEM: CHECK VALVE-RETURN LINE FROM ENG'S/ACT'S

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA EVALUATION BASED ON DISCUSSION WITH JERRY BORRER/DF65.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-457  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 457  
ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-457A  
NASA FMEA #: 02-6-A11-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 457  
ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-458  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 458  
ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS/SSME HYD-SUPPLY LINES

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

458 & 459 CAN BE COMBINED IF THERE IS NO MEANINGFUL DIFFERENCE IN EFFECTS DUE TO DIFFERENT TIME DELAYS OF FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-458A  
NASA FMEA #: 02-6-A15-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 458  
ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS/SSME HYD-  
SUPPLY LINES

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

458 & 459 CAN BE COMBINED IF THERE IS NO MEANINGFUL DIFFERENCE IN  
EFFECTS DUE TO DIFFERENT TIME DELAYS OF FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-459  
 NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 459  
 ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS/SSME HYD.  
 RETURN LINES

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-459A  
NASA FMEA #: 02-6-A15-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 459  
ITEM: HOSE AND SWIVEL ASSY:TVC ACTUATORS/SSME HYD.  
RETURN LINES

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-460  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 460  
ITEM: HOSE AND SWIVEL ASSY: WATER SPRAY BOILERS

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-460A  
NASA FMEA #: 02-6-E28-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 460  
ITEM: HOSE AND SWIVEL ASSY: WATER SPRAY BOILERS

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-461  
NASA FMEA #: 02-6-H04-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 461  
ITEM: NOSE WHEEL STEERING FLEX HOSE ASSEMBLY

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [   ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:  
SCREEN B SHOULD BE CHANGED TO "PASS".

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-462  
NASA FMEA #: 02-6-G10-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 462  
ITEM: MAIN LANDING GEAR FLEX HOSE (EXTEND)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B SHOULD BE CHANGED TO NOT APPLICABLE. THE PYROS ARE  
UNLIKE REDUNDANT ITEMS AND ARE EXCLUDED BY 2.3.4.b.2.c OF NSTS  
22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-463  
NASA FMEA #: 02-6-G11-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 463  
ITEM: MAIN LANDING GEAR FLEX HOSE (RETRACT)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[ N ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [ NA ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

## REMARKS:

SCREEN B SHOULD BE CHANGED TO NOT APPLICABLE. THE PYROS ARE  
UNLIKE REDUNDANT ITEMS AND ARE EXCLUDED BY 2.3.4.b.2.c OF NSTS  
22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-464  
NASA FMEA #: 02-6-SYSTEM-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 464  
ITEM: HYDRAULIC LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

THE FMEA 02-6-SYSTEM-3 REPRESENTS WORST CASE HYDRAULIC LINE RUPTURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-465  
 NASA FMEA #: 02-6-SYSTEM-3

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 465  
 ITEM: HYDRAULIC LINE (SUPPLY) SYSTEM 1

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ F ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
 INADEQUATE [    ]

## REMARKS:

A SECOND FMEA SHOULD BE WRITTEN TO COVER RUPTURE OF HYDRAULIC  
 LINE SEGMENTS THAT ARE NOT DETECTABLE DURING FLIGHT PER DOC.  
 22206 DEFINITION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-466  
NASA FMEA #: 02-6-SYSTEM-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 466  
ITEM: HYDRAULIC LINE (RETURN) SYSTEM 1

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

LANDING GEAR WILL BE UNLOCKED AND LOWERED BEFORE HYDRAULIC FLUID IS DEPLETED. A FMEA SHOULD BE WRITTEN TO COVER RUPTURE OF HYDRAULIC LINE SEGEMENTS THAT HAVE CRITICALITIES DIFFERENT THAN FMEA 02-6-SYSTEM-3. FMEA 02-6-SYSTEM REPRESENTS WORST CASE HYDRAULIC LINE RUPTURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-467  
NASA FMEA #: 02-6-SYSTEM-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 467  
ITEM: HYDRAULIC LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-SYSTEM-3 REPRESENTS WORST CASE HYDRAULIC LINE RUPTURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-468  
NASA FMEA #: 02-6-SYSTEM-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 468  
ITEM: HYDRAULIC LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-SYSTEM-3 REPRESENTS WORST CASE HYDRAULIC LINE RUPTURE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-469  
NASA FMEA #: 02-6-G04-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 469  
ITEM: REDUNDANT SHUTOFF VALVE (N.O.)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

THE IOA CRITICALITY IS BASED ON THE UNDERSTANDING THAT THE PYRO UNLOCK MECHANISM CANNOT OVERRIDE HYDRAULIC PRESSURE LOCKUP.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-470  
NASA FMEA #: 02-6-G04-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 470  
ITEM: REDUNDANT SHUTTOFF VALVE (N.O.)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-472  
NASA FMEA #: 02-6-G05-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 472  
ITEM: LANDING GEAR DUMP SOLENOID VALVE (N.C.)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FAILURE OF REDUNDANT ITEM (L.G. CONTROL/UPCIRC VALVE) WILL RESULT  
IN HYDRAULIC LOCKUP, WHICH CANNOT BE OVERRIDDEN BY PYRO.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-473  
NASA FMEA #: 02-6-G05-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 473  
ITEM: LANDING GEAR DUMP SOLENOID VALVE (N.C.)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-474  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 474  
ITEM: LANDING GEAR DUMP SOLENOID VALVE (N.C.)

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FMEA CORRECT. SHOULD PASS SCREEN B.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-475  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 475  
ITEM: PRIORITY VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DELETE THIS MDAC ID. BECAUSE OF VALVE DESIGN, IT IS IDENTICAL TO MDAC ID 476.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-476  
NASA FMEA #: 02-6-E23-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 476  
ITEM: PRIORITY VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 2 /1R ]		[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]		[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-477  
NASA FMEA #: 02-6-E23-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 477  
ITEM: PRIORITY VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-478  
NASA FMEA #: 02-6-E12-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 478  
ITEM: ACCUMULATOR DUMP VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

AGREE WITH NASA EVALUATION. INADEQUATE INFORMATION AVAILABLE AT TIME OF IOA ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-479  
NASA FMEA #: 02-6-C07-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 479  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-C07-2 INCORPORATES MDAC ID'S 479 AND 480.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-480  
NASA FMEA #: 02-6-C07-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 480  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

FMEA 02-6-C07-2 INCORPORATES MDAC ID'S 479 AND 480.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-481  
NASA FMEA #: 02-6-C07-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 481  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

FMEA 02-6-C07-1 INCORPORATES MDAC ID'S 481 AND 482.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-482  
NASA FMEA #: 02-6-C07-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 482  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

## REMARKS:

FMEA 02-6-C07-1 INCORPORATES MDAC ID'S 481 AND 482.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-483  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 483  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
RECOMMEND DELETING THIS FAILURE (MDAC ID 483). VALVE DESIGN  
MAKES IT NON-THREATENING.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-484  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 484  
ITEM: LANDING GEAR ISOLATION VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-485  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 485  
ITEM: LANDING GEAR ISOLATION VALVE POS. INDICATION

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT FMEA BE WRITTEN TO COVER THIS FAILURE.  
LANDING GEAR ISO-VALVE "FAILS TO OPEN" (FMEA 02-6-C07-2) OR  
"PREMATURE OPEN" (FMEA 02-6-C07-1) ARE CRITICALITY 2/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-486  
NASA FMEA #: 02-6-G13-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 486  
ITEM: LANDING GEAR CONTROL UP/CIRC. SOLENOID VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

THE IOA CRITICALITY IS BASED ON THE UNDERSTANDING THAT THE PYRO UNLOCK MECHANISM CANNOT OVERRIDE HYDRAULIC PRESSURE LOCKUP.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-487  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 487  
ITEM: LANDING GEAR CONTROL UP/CIRC. SOLENOID VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA DELETED FMEA 02-6-G13-3. THIS FMEA SHOULD BE RETAINED. IF THE VALVE FAILS TO CLOSE ON THE GOUND AND REMAINED IN THE OPEN POSITION, THIS FAILURE WOULD HAVE A FLIGHT CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-488  
NASA FMEA #: 02-6-G13-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 488  
ITEM: LANDING GEAR CONTROL UP/CIRC. SOLENOID VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

```

ASSESSMENT DATE: 1/08/87          NASA DATA:
ASSESSMENT ID:   HYDWSB-489        BASELINE [      ]
NASA FMEA #:     02-6-SYSTEM-2     NEW [ X ]

SUBSYSTEM:       HYD/WSB
MDAC ID:         489
ITEM:            LANDING GEAR CONTROL UP/CIRC SOLENOID VALVE

LEAD ANALYST:    W. DAVIDSON

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

[ / ] [ ] [ F ] [ ] [ ]  
(ADD/DELETE)

ADEQUATE [ X ]  
INADEQUATE [ ]

A SECOND FMEA SHOULD BE WRITTEN TO COVER EXTERNAL LEAKS THAT ARE NOT DETECTABLE DURING FLIGHT PER DOC. 22206 DEFINITION./

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-490  
NASA FMEA #: 02-6-G14-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 490  
ITEM: RESTRICTOR, HYDRAULIC, L.G. RETRACT LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ ER]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [ X ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-491  
NASA FMEA #: 02-6-G02-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 491  
ITEM: LANDING GEAR CONTROL VALVE-2POS, 3WAY, SOLENOID  
OPERATED

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-492  
NASA FMEA #: 02-6-G02-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 492  
ITEM: LANDING GEAR CONTROL VALVE-2POS, 3WAY, SOLENOID  
OPERATED

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ NA]	[ NA]	[ NA]	[ X ] *
IOA	[ 1 /1 ]	[ NA]	[ NA]	[ NA]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-493  
NASA FMEA #: 02-6-G02-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 493  
ITEM: LANDING GEAR CONTROL VALVE-2POS, 3WAY, SOLENOID  
OPERATED

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-494  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 494  
ITEM: LANDING GEAR CONTROL VALVE - 2 POS, 3 WAY,  
SOLENOID

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ F ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

A SECOND FMEA SHOULD BE WRITTEN TO COVER EXTERNAL LEAKS THAT ARE NOT DETECTABLE DURING FLIGHT PER DOC. 22206 DEFINITION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-495  
NASA FMEA #: 02-6-A06-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 495  
ITEM: MPS/TVC SHUTOFF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-496  
NASA FMEA #: 02-6-A06-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 496  
ITEM: MPS/TVC SHUTOFF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-497  
NASA FMEA #: 02-6-A06-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 497  
ITEM: MPS/TVC SHUTOFF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-498  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 498  
ITEM: MPS/TVC SHUTOFF VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-600  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 600  
ITEM: PUMP (MECHANICAL)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-601  
NASA FMEA #: 02-6-E06-5

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 601  
ITEM: PUMP (MECHANICAL)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ NA]	[ NA]	[ NA]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA RESOURCES ARE INADEQUATE TO ADEQUATELY ASSESS THE NASA  
RATIONALE FOR A 1/1 CRITICALITY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-602  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 602  
ITEM: PUMP (MECHANICAL)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

RECOMMEND DELETING MDAC 602. RESTRICTED FLOWS WOULD  
REALISTICALLY OCCUR AT FILTERS AND ORIFICES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-603  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 603  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-604  
NASA FMEA #: 02-6-E06-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 604  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-605  
NASA FMEA #: 02-6-E06-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 605  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-606  
NASA FMEA #: 02-6-E06-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 606  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-607  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 607  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-608  
NASA FMEA #: 02-6-E06-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 608  
ITEM: DEPRESSURIZATION VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-609  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 609  
ITEM: PRESSURE COMPENSATOR SPOOL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-610  
NASA FMEA #: 02-6-E06-5

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 610  
ITEM: PRESSURE COMPENSATOR SPOOL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-611  
NASA FMEA #: 02-6-E06-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 611  
ITEM: PRESSURE COMPENSATOR SPOOL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-612  
NASA FMEA #: 02-6-E30-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 612  
ITEM: FLEX HOSE (SUCTION)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-613  
NASA FMEA #: 02-6-E30-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 613  
ITEM: FLEX HOSE (SUPPLY)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-614  
NASA FMEA #: 02-6-E30-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 614  
ITEM: FLEX HOSE (CASE)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-615  
NASA FMEA #: 02-6-E04-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 615  
ITEM: SHAFT SEAL DRAIN PORT

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-619  
NASA FMEA #: 02-6-E09-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 619  
ITEM: CHECK VALVE (SUPPLY)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA SCREEN B RATIONALE. HAD NOT CONSIDERED TIME FACTOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-620  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 620  
ITEM: CHECK VALVE (SUPPLY)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-621  
NASA FMEA #: 02-6-E07-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 621  
ITEM: CHECK VALVE (CASE)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[   ] *
IOA	[ 2 / 1R ]	[ NA ]	[ NA ]	[ NA ]	[ X ]
COMPARE	[ N / N ]	[   ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

AGREE WITH NASA CRITICALITIES. A CLOSED CHECK VALVE IS NOT CREDIBLE, SINCE THE VALVE HAS A LOW OPENING PRESSURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-622  
 NASA FMEA #: 02-6-E07-1

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 622  
 ITEM: CHECK VALVE (CASE)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-623  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 623  
ITEM: CHECK VALVE (CASE)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-624  
NASA FMEA #: 02-6-E03-5

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 624  
ITEM: HYDRAULIC RESERVOIR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-625  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 625  
ITEM: HYDRAULIC RESERVOIR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS ASSESSMENT WORKSHEET. THE RESERVOIR PRESSURE SHOULD  
BE GREAT ENOUGH TO OVERCOME ANY BINDING.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-626  
NASA FMEA #: 02-6-E03-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 626  
ITEM: HYDRAULIC RESERVOIR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-627  
NASA FMEA #: 02-6-E03-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 627  
ITEM: HYDRAULIC RESERVOIR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-628  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 628  
ITEM: LOW PRESSURE RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT A FMEA BE CREATED TO COVER THIS FAILURE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-629  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 629  
ITEM: LOW PRESSURE RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-630  
NASA FMEA #: 02-6-E03-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 630  
ITEM: LOW PRESSURE RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-631  
NASA FMEA #: 02-6-E03-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 631  
ITEM: LOW PRESSURE RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-632  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 632  
ITEM: HORIZONTAL/BLEED SAMPLE VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87                      NASA DATA:  
ASSESSMENT ID: HYDWSB-633                      BASELINE [    ]  
NASA FMEA #: 02-6-SYSTEM-2                      NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 633  
ITEM: VERTICAL/BLEED SAMPLE VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ]    [ ]    [ ]    [ ]    [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-634  
NASA FMEA #: 02-6-E03-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 634  
ITEM: FLUID VOLUME TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-635  
NASA FMEA #: 02-6-E03-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 635  
ITEM: FLUID VOLUME TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-636  
NASA FMEA #: 02-6-E03-4

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 636  
ITEM: FLUID VOLUME TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-637  
NASA FMEA #: 02-6-SYSTEM-7

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 637  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-638  
NASA FMEA #: 02-6-SYSTEM-7

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 638  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-639  
NASA FMEA #: 02-6-SYSTEM-7

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 639  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-643  
NASA FMEA #: 02-6-C05-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 643  
ITEM: E.T. UMBILICAL RETRACT ACTUATOR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-644  
NASA FMEA #: 02-6-C05-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 644  
ITEM: E.T. UMBILICAL RETRACT ACTUATOR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-645  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 645  
ITEM: E.T. UMBILICAL RETRACT ACTUATOR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT A FMEA BE WRITTEN TO COVER AN INTERNAL LEAKAGE FAILURE FOR AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-646  
NASA FMEA #: 02-6-C05-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 646  
ITEM: E.T. UMBILICAL RETRACT ACTUATOR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA ASSESSMENT RATIONALE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-646A  
NASA FMEA #: 02-6-C05-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 646  
ITEM: E.T. UMBILICAL RETRACT ACTUATOR

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA ASSESSMENT RATIONALE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-647  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 647  
ITEM: EXTEND SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE SHOULD BE COVERED BY THE RECOMMENDED FMEA COVERING  
INTERNAL LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.  
(REFERENCE MDAC ID #645)

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-648  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 648  
ITEM: EXTEND SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THIS FAILURE, SINCE IT WOULD HAVE NO EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-649  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 649  
ITEM: EXTEND SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS ASSESSMENT WORKSHEET. THIS FAILURE WOULD EFFECT  
GROUND OPERATIONS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-650  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 650  
ITEM: FLOW CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-651  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 651  
ITEM: FLOW CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS FAILURE SHOULD BE COVERED BY THE RECOMMENDED FMEA COVERING  
INTERNAL LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.  
(REFERENCE MDAC ID #645)

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-652  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 652  
ITEM: EXTEND SWITCHING VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THIS FAILURE, SINCE IT WOULD HAVE NO EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-653  
NASA FMEA #:

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 653  
ITEM: EXTEND SWITCHING VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[   ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

THIS FAILURE SHOULD BE COVERED BY THE RECOMMENDED FMEA COVERING  
INTERNAL LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-654  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 654  
ITEM: BYPASS FLOW VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE SHOULD BE COVERED BY THE RECOMMENDED FMEA COVERING  
INTERNAL LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-655  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 655  
ITEM: BYPASS FLOW VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-656  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 656  
ITEM: RESET VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-657  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 657  
ITEM: RESET VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS ASSESSMENT SHOULD BE COVERED BY THE RECOMMENDED INTERNAL  
LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-658  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 658  
ITEM: DAMPER ASSEMBLY

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-659  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 659  
ITEM: RETRACT SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-660  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 660  
ITEM: RETRACT SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS ASSESSMENT SHOULD BE COVERED BY THE RECOMMENDED INTERNAL  
LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-661  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 661  
ITEM: RETRACT SOLENOID VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A NEW FMEA SHOULD BE CREATED TO COVER THIS FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-662  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 662  
ITEM: LOCK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-663  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 663  
ITEM: LOCK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS ASSESSMENT SHOULD BE COVERED BY THE RECOMMENDED INTERNAL  
LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-664  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 664  
ITEM: RETRACT SWITCHING VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-665  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 665  
ITEM: RETRACT SWITCHING VALVE

LEAD ANALYST: W. E. PARKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

THIS ASSESSMENT SHOULD BE COVERED BY THE RECOMMENDED INTERNAL  
LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-666  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 666  
ITEM: THERMAL RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A "RESTRICTED FLOW" OR "FAILS CLOSED" FAILURE MODE SHOULD BE  
CREATED FOR THE HYDRAULIC SYSTEM AND ITS COMPONENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-667  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 667  
ITEM: THERMAL RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS ASSESSMENT SHOULD BE COVERED BY THE RECOMMENDED INTERNAL  
LEAKAGE FAILURE OF AN E.T. UMBILICAL ACTUATOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-668  
NASA FMEA #: 02-6-C05-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 668  
ITEM: SHAFT DRAIN SEAL

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-669 BASELINE [ ]  
NASA FMEA #: 02-6-C09-1 NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 669  
ITEM: FLEX HOSE & SWIVEL ASSEMBLY (SUPPLY)

LEAD ANALYST: W. E. PARKMAN

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS :

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-670  
NASA FMEA #: 02-6-C09-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 670  
ITEM: FLEX HOSE & SWIVEL ASSEMBLY (RETURN)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-671  
NASA FMEA #: 02-6-C10-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 671  
ITEM: CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ ]
-----------	-------	-------	-------	-----

(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

HARDWARE CRITICALITY FOR THE E.T. UMBILICAL ACTUATOR SHOULD BE A "3". TWO OF THE THREE ACTUATORS PER SIDE COULD FAIL WITHOUT DAMAGING THE ORBITER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-672  
NASA FMEA #: 02-6-C10-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 672  
ITEM: CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ NA ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

RECOMMEND FUNCTIONAL CRITICALITY BE CHANGED TO 3. THE "FAILS TO CLOSE" FAILURE COULD ONLY EFFECT THE HARDWARE AFTER ITS FUNCTION HAS BEEN COMPLETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-673  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 673  
ITEM: CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-677  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 677  
ITEM: MANUAL DRAIN VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-678  
NASA FMEA #: 02-6-E13-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 678  
ITEM: DRAIN (FROM RESERVOIRS, MAIN PUMPS, AND  
ACCUMULATORS)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
-------------	--------	--------	--------	--------

(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-679  
NASA FMEA #:

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 679  
ITEM: DRAIN (OVERBOARD)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[   ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

DELETE ASSESSMENT (MDAC #679). THIS FAILURE WOULD HAVE NO  
SIGNIFICANT EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-680  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 680  
ITEM: SHAFT SEAL DRAIN HOSE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE ASSESSMENT (MDAC #680). THIS FAILURE WOULD HAVE NO  
SIGNIFICANT EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-681  
NASA FMEA #: 02-6-E13-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 681  
ITEM: SHAFT SEAL DRAIN HOSE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-682  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 682  
ITEM: SHAFT SEAL MANIFOLD DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DELETE ASSESSMENT (MDAC #682). THIS FAILURE WOULD HAVE NO  
SIGNIFICANT EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-683  
NASA FMEA #: 02-6-E13-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 683  
ITEM: SHAFT SEAL MANIFOLD DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-684  
NASA FMEA #: 02-6-E04-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 684  
ITEM: OLEOPHOBIC FILTER (TYPE I)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-685  
NASA FMEA #: 02-6-E05-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 685  
ITEM: SURFACE THERMAL SWITCH

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]		[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-686  
NASA FMEA #: 02-6-E05-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 686  
ITEM: SURFACE THERMAL SWITCH

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-687  
NASA FMEA #: 02-6-E05-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 687  
ITEM: LINE ELECTRIC HEATERS

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA CONCURS WITH NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-688  
NASA FMEA #: 02-6-E05-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 688  
ITEM: LINE ELECTRIC HEATERS

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-689  
NASA FMEA #: 02-6-E04-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 689  
ITEM: OLEOPHOBIC FILTER (TYPE II)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-690  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 690  
ITEM: MANIFOLD SHAFT SEAL DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE ASSESSMENT (MDAC #690). THIS FAILURE WOULD HAVE NO  
SIGNIFICANT EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-691  
NASA FMEA #: 02-6-E13-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 691  
ITEM: MANIFOLD SHAFT SEAL DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-692  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 692  
ITEM: OVERBOARD DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE ASSESSMENT (MDAC #692). THIS FAILURE WOULD HAVE NO SIGNIFICANT EFFECT IN FLIGHT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-693  
NASA FMEA #: 02-6-E13-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 693  
ITEM: OVERBOARD DRAIN

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-694  
NASA FMEA #: 02-6-E04-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 694  
ITEM: OLEPHOBIC FILTER (TYPE I)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-695  
NASA FMEA #: 02-6-E05

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 695  
ITEM: SURFACE THERMAL SWITCH

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-696  
NASA FMEA #: 02-6-E05-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 696  
ITEM: SURFACE THERMAL SWITCH

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-697  
NASA FMEA #: 02-6-E05-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 697  
ITEM: LINE ELECTRIC HEATER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA CONCURS WITH NASA CRITICALITY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-698  
NASA FMEA #: 02-6-E05-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 698  
ITEM: LINE ELECTRIC HEATER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA CONCURS WITH NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-699  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 699  
ITEM: CIRCULATION PUMP CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-700  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 700  
ITEM: CIRCULATION PUMP CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE ASSESSMENT (MDAC #700). EFFECT OF FAILURE IS LOSS OF THERMAL CONTROL BY THE CIRCULATION PUMP FOR ONE SYSTEM. THIS FAILURE IS HIGHLY IMPROBABLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-701  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 701  
ITEM: GSE CHECK VALVE

LEAD ANALYST: W.E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ / ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DELETE THIS FAILURE ANALYSIS SHEET. RUPTURE OF CHECK VALVE  
INFLIGHT IS SIGNIFICANTLY LESS PROBABLE THAN RUPTURE OF HYDRAULIC  
LINES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-702  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 702  
ITEM: GSE CHECK VALVE

LEAD ANALYST: W.E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS FAILURE ANALYSIS SHEET. THIS FAILURE WOULD BE  
RECOGNIZED ON THE GROUND AND WOULD NOT BECOME A FLIGHT PROBLEM.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-703  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 703  
ITEM: GSE CHECK VALVE

LEAD ANALYST: W.E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS FAILURE ANALYSIS SHEET. THIS FAILURE WOULD BE  
RECOGNIZED ON THE GROUND AND WOULD NOT BECOME A FLIGHT PROBLEM.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-704  
NASA FMEA #: 02-6-E10-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 704  
ITEM: CIRCULATION PUMP CHECK VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-705  
NASA FMEA #: 02-6-E11

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 705  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[   /   ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-706  
NASA FMEA #: 02-6-E11

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 706  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-707  
NASA FMEA #: 02-6-E11

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 707  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-708  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 708  
ITEM: SUPPLY FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-709  
NASA FMEA #: 02-6-E08-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 709  
ITEM: SUPPLY FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-710  
NASA FMEA #: 02-6-E11-A01

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 710  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-711  
NASA FMEA #: 02-6-E11-A02

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 711  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-712  
NASA FMEA #: 02-6-E11-A01

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 712  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-713  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 713  
ITEM: RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS.			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-714  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 714  
ITEM: RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT A FMEA BE GENERATED TO RECOGNIZE THIS FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-715  
NASA FMEA #: 02-6-E08-6

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 715  
ITEM: RELIEF VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-716  
NASA FMEA #: 02-6-E11-A01

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 716  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-717  
NASA FMEA #: 02-6-E11-A02

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 717  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-718  
NASA FMEA #: 02-6-E11-A01

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 718  
ITEM: PRESSURE TRANSDUCER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-719  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 719  
ITEM: CASE FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-720  
NASA FMEA #: 02-6-E08-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 720  
ITEM: CASE FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-721  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 721  
ITEM: RETURN FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-722  
NASA FMEA #: 02-6-E08-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 722  
ITEM: RETURN FILTER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

IOA CONCURS WITH NASA SCREEN B.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-723  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 723  
ITEM: FREON/OIL HEAT EXCHANGER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE SHOULD BE IN THE ENVIRONMENTAL CONTROL SYSTEM FMEA PACKAGE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-724  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 724  
ITEM: FREON/OIL HEAT EXCHANGER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT A FMEA BE GENERATED TO RECOGNIZE THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-725  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 725  
ITEM: FREON/OIL HEAT EXCHANGER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-726  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 726  
ITEM: FREON/OIL HEAT EXCHANGER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS ASSESSMENT. THIS FAILURE WOULD PROBABLY OCCUR IN THE  
FILTER INSTEAD OF THE HEAT EXCHANGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-727  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 727  
ITEM: FREON/OIL HEAT EXCHANGER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DELETE THIS ASSESSMENT. RESTRICTED FLOW OF FREON IS NOT CREDIBLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-728  
NASA FMEA #: 02-6-E39-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 728  
ITEM: THERMAL CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-729  
NASA FMEA #: 02-6-E39-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 729  
ITEM: THERMAL CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-730  
NASA FMEA #: 02-6-SYSTEM-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 730  
ITEM: THERMAL CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-731  
NASA FMEA #: 02-6-E39-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 731  
ITEM: THERMAL CONTROL VALVE

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

E39-3 WAS DELETED IN NASA REVIEW.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-800  
NASA FMEA #: 05-6G-201200-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 800  
ITEM: RESISTOR (SWITCH 28)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /1R ]	[ P ]	[ P ]	[ P ]	[ ]
---------	-------	-------	-------	-----

(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-801  
NASA FMEA #: 05-6G-201200-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 801  
ITEM: RESISTOR (SWITCH 28)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-802  
NASA FMEA #: 05-6G-201200-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 802  
ITEM: SWITCH 28

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /1R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-803  
NASA FMEA #: 05-6G-201200-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 803  
ITEM: REMOTE POWER CONTROLLER NO. 37

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /1R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-804  
NASA FMEA #: 05-6G-201200-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 804  
ITEM: REMOTE POWER CONTROLLER NO. 37

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-805  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 805  
ITEM: RESISTOR (SWITCH 19)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /1R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-806  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 806  
ITEM: RESISTOR (SWITCH 19)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-807  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 807  
ITEM: SWITCH 19

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-808  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 808  
ITEM: SWITCH 19

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-809  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 809  
ITEM: REMOTE POWER CONTROLLER NO. 40

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /1R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-810  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 810  
ITEM: REMOTE POWER CONTROLLER NO. 40

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-811  
NASA FMEA #: 05-6G-201100-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 811  
ITEM: FUSE 51, 52, 53

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

3/1R CRITICALITY IS BASED ON POSSIBILITY OF FLUID FREEZING  
LOCALLY AS A RESULT OF LOSS OF HEATERS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-812  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM:        HYD/WSB  
MDAC ID:           812  
ITEM:             THERMOSTAT (S16, S17, S4)

LEAD ANALYST:     W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS:    (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DELETE MDAC ID #812.    THIS ITEM WAS COVERED IN THE HEATER  
HARDWARE FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-813  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 813  
ITEM: THERMOSTAT (S16, S17, S4)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DELETE MDAC ID #813. THIS ITEM WAS COVERED IN THE HEATER  
HARDWARE FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-814  
NASA FMEA #: 05-6G-201000-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 814  
ITEM: MASTER EVENTS CONTROLLER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA CRITICALITY IS MISPRINT SHOULD BE 2/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-815  
NASA FMEA #: 05-6G-201000-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 815  
ITEM: MASTER EVENTS CONTROLLER

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-816  
NASA FMEA #: 05-6G-200400-1NC

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 816  
ITEM: POWER CONTACTOR (K3, K4)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-817  
NASA FMEA #: 05-6G-2114-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 817  
ITEM: POWER CONTACTOR (K3, K4)

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /3 ]	[ NA]	[ NA]	[ NA]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO CONTROL POWER TO ONE CIRC PUMP. LOSS OF ALL REDUNDANCY MEANS POSSIBLE LOSS OF ONE CIRC PUMP AT APU START OR DURING APU OPERATION. LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-818 BASELINE [    ]  
NASA FMEA #: 05-6G-2110-2 NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 818  
ITEM: HYBRID DRIVER (K3), AR TYPE III

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ NA ] [ NA ] [ NA ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC PUMP.  
LOSS OF ALL REDUNDANCY MEANS POSSIBLE LOSS OF ONE CIRC PUMP AT  
APU START OR DURING APU OPERATION. LOSS OF ONE CIRC. PUMP WILL  
NOT RESULT IN LOSS OF LIFE OR VEHICLE NOR WILL IT RESULT  
IN LOSS OF MISSION. LOSS OF A CIRC. PUMP IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-819  
NASA FMEA #: 05-6G-200400-1L1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 819  
ITEM: HYBRID DRIVER (K3), AR TYPE III

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.

```

ASSESSMENT DATE: 1/08/87      NASA DATA:
ASSESSMENT ID:   HYDWSB-820    BASELINE [      ]
NASA FMEA #:     05-6G-200400-1L1      NEW [ X ]

SUBSYSTEM:       HYD/WSB
MDAC ID:         820
ITEM:            HYBRID DRIVER (K4), AR TYPE III

LEAD ANALYST:    W. E. PARKMAN

ASSESSMENT:

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS :

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-821  
NASA FMEA #: 05-6G-2110-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 821  
ITEM: HYBRID DRIVER (K4), AR TYPE III

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /3 ]	[ NA ]	[ NA ]	[ NA ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO CONTROL POWER TO ONE CIRC PUMP. LOSS OF ALL REDUNDANCY MEANS POSSIBLE LOSS OF ONE CIRC PUMP AT APU START OR DURING APU OPERATION. LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP IS CRITICALITY 3/1R.



```

ASSESSMENT DATE: 1/08/87          NASA DATA:
ASSESSMENT ID:   HYDWSB-822       BASELINE [    ]
NASA FMEA #:     05-6G-200400-1M2 NEW [ X ]

SUBSYSTEM:       HYD/WSB
MDAC ID:         822
ITEM:            HYBRID DRIVER (K4), AR TYPE II

LEAD ANALYST:    W. E. PARKMAN

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM	*
FLIGHT HDW/FUNC		A	B	C		
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]	
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]	

[ 3 /3 ]      [ NA]      [ NA]      [ NA]      [ ]  
(ADD/DELETE)

ADEQUATE [ ]  
INADEQUATE [ ]

THE FUNCTION OF THIS DRIVER IS TO PREVENT CIRC PUMP OPERATION DURING APU OPERATION. INADVERTENT OPERATION INHIBITS ONE REDUNDANT POWER SOURCE TO CIRC. PUMP.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-823 BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1M1 NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 823  
ITEM: HYBRID DRIVER (K4), AR TYPE II

LEAD ANALYST: W. E. PARKMAN

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREENS SHOULD BE NAS PER NSTS 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-824  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 824  
ITEM: RESISTOR, CURRENT LIMITER - 1.2K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO NASA FMEA. NOT CONSIDERED A CREDIBLE FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-825  
NASA FMEA #: 05-6G-200400-10

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 825  
ITEM: RESISTOR, CURRENT LIMITER - 1.2K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-826  
NASA FMEA #: 05-6G-200400-1K

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 826  
ITEM: BLOCKING DIODE - 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-827  
NASA FMEA #: 05-6G-200400-1K

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 827  
ITEM: BLOCKING DIODE - 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-828 BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1Q NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 828  
ITEM: RESISTOR CURRENT LIMITER - 5.1K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-829  
NASA FMEA #: 05-6G-200400-1Q

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 829  
ITEM: RESISTOR, CURRENT LIMITER - 5.1K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-830 BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1P NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 830  
ITEM: RESISTORS - VOLTAGE DIVIDERS - 1.8K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-831  
NASA FMEA #: 05-6G-200400-1P

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 831  
ITEM: RESISTORS - VOLTAGE DIVIDERS - 1.8K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

ASSESSMENT DATE: 1/08/87                      NASA DATA:  
ASSESSMENT ID: HYDWSB-832                  BASELINE [   ]  
NASA FMEA #: 05-6G-200400-1Q              NEW [ X ]

LEAD ANALYST: J. DUVAL

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

[ / ] [ NA] [ NA] [ NA] [ ]  
(ADD/DELETE)

ADEQUATE [ ]  
INADEQUATE [ ]

REPORT DATE 02/26/88

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-833  
NASA FMEA #: 05-6G-200400-1Q

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 833  
ITEM: CURRENT LIMITER RESISTORS 2.15K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-834  
NASA FMEA #: 05-6G-200400-1I1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 834  
ITEM: BLOCKING DIODE - 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS.			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-835  
NASA FMEA #: 05-6G-200400-1I2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 835  
ITEM: BLOCKING DIODE - 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA]	[ NA]	[ NA]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC.  
PUMP IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-836  
NASA FMEA #: 05-6G-200400-1J

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 836  
ITEM: BLOCKING DIODE - MDM CIRCUIT 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-837  
NASA FMEA #: 05-6G-200400-1JA

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 837  
ITEM: BLOCKING DIODE - MDM CIRCUIT 3A

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /3    ]	[ NA ]	[ NA ]	[ NA ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO ENABLE THE GPC TO PROVIDE POWER TO ONE CIRC PUMP. LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP. LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP IS CRITICALITY 3/1R.



ASSESSMENT DATE: 1/08/87                      NASA DATA:  
ASSESSMENT ID: HYDWSB-838                  BASELINE [    ]  
NASA FMEA #: 05-6G-200400-1I-1           NEW [ X ]

LEAD ANALYST: J. DUVAL

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM	
FLIGHT	HDW/FUNC	A	B	C		
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]	*
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]	

[   /   ]      [   ]      [   ]      [   ]      [   ]  
(ADD/DELETE)

ADEQUATE [ ]  
INADEQUATE [ ]

C-381

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-839  
NASA FMEA #: 05-6G-200400-1I2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 839  
ITEM: BLOCKING DIODES SW "ON" CIRCUIT (3A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /3    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC.  
PUMP IS CRITICALITY 3/1R.

```

ASSESSMENT DATE: 1/08/87
ASSESSMENT ID: HYDWSB-840
NASA FMEA #: 05-6G-200400-1H
SUBSYSTEM: HYD/WSB
MDAC ID: 840
ITEM: CURRENT LIMITER RESISTOR, 1.21K
LEAD ANALYST: J. DUVAL
ASSESSMENT:

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM	
FLIGHT	HDW/FUNC	A	B	C		
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]	*
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]	

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC.  
PUMP IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-841  
NASA FMEA #: 05-6G-200400-1F

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 841  
ITEM: HYD CIRC PUMP SW 29

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA]	[ NA]	[ NA]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS SWITCH IS TO CONTROL THE CIRC. PUMP OPERATION. APU SWITCH TURNS OFF PUMP DURING APU OPERATION. THERE IS NOT REDUNDANT CAPABILITY TO TURN OFF THE CIRC. PUMP AFTER THIS FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-842  
NASA FMEA #: 05-6G-200400-1D

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 842  
ITEM: HYD CIRC PUMP SW 29

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-843  
NASA FMEA #: 05-6G-200400-1E

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 843  
ITEM: HYD CIRC PUMP SW 29

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA]	[ NA]	[ NA]	[ ]
--------	-------	-------	-------	-----

(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A  
CIRC. PUMP IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-844 BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1H NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 844  
ITEM: CURRENT LIMITER RESISTOR, 1.21K

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-845  
NASA FMEA #: 05-6G-200400-1G

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 845  
ITEM: FUSE F7, F15

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ]	[ NA]	[ NA]	[ NA]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-846  
NASA FMEA #: 05-6G-200400-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 846  
ITEM: PWR SW S25

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC. PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC. PUMP.  
LOSS OF ONE CIRC. PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC. PUMP  
IS CRITICALITY 3/1R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-847  
NASA FMEA #: 05-6G-200700-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 847  
ITEM: HYDRAULIC FLUID QUANTITY METER, CB 57

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-848  
NASA FMEA #: 05-6G-2080-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 848  
ITEM: HYBRID DRIVER, TYPE IV

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

AFTER FURTHER REVIEW/ANALYSIS IOA CONCURS WITH THE NASA FMEA/CIL.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-849  
NASA FMEA #: 05-6G-2080-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 849  
ITEM: HYBRID DRIVER, TYPE IV

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-850  
NASA FMEA #: 05-6G-200100-1E

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 850  
ITEM: RPC

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA ASSESSMENT. FAILURE DOES NOT MEET CIL CRITERIA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-851  
NASA FMEA #: 05-6G-200100-1C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 851  
ITEM: RPC

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA REDUNDANCY SCREEN B.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-853  
NASA FMEA #: 05-6G-200100-1JA

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 853  
ITEM: BLOCKING DIODE, GROUND MDM (-1A, -3A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREENS SHOULD BE BLANK PER NSTS-22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-854  
NASA FMEA #: 05-6G-200100-1JB

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 854  
ITEM: BLOCKING DIODES, GROUND MDM (-1A,-3A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-854A  
NASA FMEA #: 05-6G-200100-1JH

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 854  
ITEM: BLOCKING DIODES, GROUND MDM (-1A,-3A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-855 BASELINE [ ]  
NASA FMEA #: 05-6G-200100-1JC NEW [ X ]  
  
SUBSYSTEM: HYD/WSB  
MDAC ID: 855  
ITEM: BLOCKING DIODES, (-1A,-3A)  
  
LEAD ANALYST: J. DUVAL

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM	
FLIGHT HDW/FUNC		A	B	C		
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]	*
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]	
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]	

[   /   ]      [   ]      [   ]      [   ]      [   ]  
(ADD/DELETE)

ADEQUATE [ ]  
INADEQUATE [ ]

C-399

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-855A  
NASA FMEA #: 05-6G-200100-1JI

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 855  
ITEM: BLOCKING DIODES, (-1A,-3A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-856  
NASA FMEA #: 05-6G-200100-10B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 856  
ITEM: RESISTOR, CURRENT LIMITER (2.15K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-857  
NASA FMEA #: 05-6G-200100-10B

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 857  
ITEM: RESISTOR, CURRENT LIMITER (2.15K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[   ]
COMPARE	[   /   ]	[ N ]	[ N ]	[ N ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:

SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-858  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 858  
ITEM: RESISTOR, CURRENT LIMITER (5.1K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
----------	-------	-------	-------	-----

(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO NASA FMEA. RECOMMEND FMEA FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-859  
NASA FMEA #: 05-6G-200100-10B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 859  
ITEM: RESISTOR, CURRENT LIMITER (5.1K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN SHOULD BE BLANK PER NSTS-22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-860  
NASA FMEA #: 05-6G-2088-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 860  
ITEM: SWITCH, HYD MAIN PUMP PRESS (S26,27,28)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-861  
NASA FMEA #: 05-6G-2088-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 861  
ITEM: SWITCH, HYD MAIN PUMP PRESS (S26,27,28)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-862  
NASA FMEA #: 05-6G-200100-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 862  
ITEM: RESISTOR (1.8K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-863  
 NASA FMEA #: 05-6G-200100-10A

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 863  
 ITEM: RESISTOR, (1.8K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:  
 SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-864  
NASA FMEA #: 05-6G-200100-10B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 864  
ITEM: RESISTOR, (2.2K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-865  
 NASA FMEA #: 05-6G-200100-10B

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 865  
 ITEM: RESISTOR, (2.2K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:  
 SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-866  
NASA FMEA #: 05-6G-200100-1I

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 866  
ITEM: FUSE (1A, F14)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA CONCURS WITH SCREEN B

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-867 BASELINE [ ]  
NASA FMEA #: 05-6G-200100-1G NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 867  
ITEM: CURRENT LIMITER RESISTOR (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN SHOULD BE BLANK PER NSTS-22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-868  
NASA FMEA #: 05-6G-200100-1H

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 868  
ITEM: CURRENT LIMITER RESISTOR (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA CONCURS WITH SCREEN B.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-869  
NASA FMEA #: 05-6G-200100-1H

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 869  
ITEM: CURRENT LIMITER RESISTOR (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH SCREEN B

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-870  
NASA FMEA #: 05-6G-200100-1G

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 870  
ITEM: CURRENT LIMITER RESISTOR (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREEN SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-871  
NASA FMEA #: 05-6G-200100-1JG

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 871  
ITEM: BLOCKING DIODE (15A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

CONCUR WITH NASA ASSESSMENT. DAMAGING TRANSIENTS FROM GROUND  
CIRCUIT NOT CREDIBLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-872  
NASA FMEA #: 05-6G-200100-1JF

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 872  
ITEM: BLOCKING DIODE (15A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-872A  
NASA FMEA #: 05-6G-200100-1JFA

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 872  
ITEM: BLOCKING DIODE (15A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-873  
NASA FMEA #: 05-6G-200100-1JE

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 873  
ITEM: BLOCKING DIODE (12A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-874  
NASA FMEA #: 05-6G-2085-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 874  
ITEM: BLOCKING DIODE (12A)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-875  
NASA FMEA #: 05-6G-200300-1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 875  
ITEM: LG RETRACT/CIRC VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-876  
NASA FMEA #: 05-6G-200300-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 876  
ITEM: LG RETRACT/CIRC VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ /3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SPLIT INTO TWO FMEA'S. SWITCH FAILS IN "GPC" POSITION SHOULD BE SEPARATE FROM "OPEN" POSITION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-877  
NASA FMEA #: 05-6G-200300-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 877  
ITEM: LG RETRACT/CIRC VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SPLIT INTO TWO FMEA'S. SWITCH FAILS IN "GPC" POSITION SHOULD BE SEPARATE FROM "OPEN" POSITION.  
SWITCH IN "OPEN" POSITION REMOVES ONE LEVEL OF ISOLATION FROM "RETRACT" HYDRAULIC CIRCUIT. REDUNDANT S/O VALVE AND L.G. DUMP SOLENOID MUST ALSO FAIL. IOA CONCURS WITH NASA CRITICALITY AND SCREENS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-878  
NASA FMEA #: 05-6G-2077-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 878  
ITEM: INDICATOR

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-879  
NASA FMEA #: 05-6G-2076-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 879  
ITEM: RESISTOR, CURRENT LIMITER (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-880  
NASA FMEA #: 05-6G-2075-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 880  
ITEM: RESISTOR, CURRENT LIMITER (5.1K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]		[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-881  
NASA FMEA #: 05-6G-2074-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 881  
ITEM: BLOCKING DIODE, "CLOSE" GROUND COMMAND

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-882  
NASA FMEA #: 05-6G-2073-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 882  
ITEM: BLOCKING DIODE (RETURN CIRCUIT)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
SCREENS SHOULD BE BLANK PER NSTS-22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-883  
NASA FMEA #: 05-6G-2073-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 883  
ITEM: BLOCKING DIODE (RETURN CIRCUIT)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

2/1R CRITICALITY IS BASED ON INABILITY TO CENTER ENGINE FOR RE-ENTRY. REF. MDAC ID#497, FMEA-02-6-A06-3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-884  
NASA FMEA #: 05-6G-2072-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 884  
ITEM: HYBRID DRIVER, TYPE IV, RETURN CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ N ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

AFTER FURTHER REVIEW/ANALYSIS IOA CONCURS WITH THE NASA FMEA/CIL EVALUATION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87                      NASA DATA:  
 ASSESSMENT ID: HYDWSB-885                      BASELINE [    ]  
 NASA FMEA #: 05-6G-2072-1                      NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 885  
 ITEM: HYBRID DRIVER, TYPE IV, RETURN CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

2/1R CRITICALITY IS BASED ON INABILITY TO CENTER ENGINE FOR RE-ENTRY. REF. MDAC ID #497, FMEA-02-6-A06-3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-886  
NASA FMEA #: 05-6G-2071-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 886  
ITEM: HYBRID DRIVER, TYPE III, VLV CLOSE CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

AFTER FURTHER REVIEW/ANALYSIS IOA CONCURS WITH THE NASA FMEA/CIL EVALUATION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
 ASSESSMENT ID: HYDWSB-887  
 NASA FMEA #: 05-6G-2071-1  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: HYD/WSB  
 MDAC ID: 887  
 ITEM: HYBRID DRIVER, TYPE III, VLV CLOSE CIRCUIT  
 LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

## REMARKS:

IOA CONCURS, SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-888  
NASA FMEA #: 05-6G-2070-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 888  
ITEM: HYBRID DRIVER, TYPE III, VLV OPEN CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS, SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-889  
NASA FMEA #: 05-6G-2070-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 889  
ITEM: HYBRID DRIVER, TYPE III, VLV OPEN CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

C-6

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-890  
NASA FMEA #: 05-6G-2069-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 890  
ITEM: BLOCKING DIODE, 3A, CLOSE CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS, SCREEN SHOULD BE BLANK PER NSTS 22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-890A BASELINE [ ]  
NASA FMEA #: 05-6G-2069-1A NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 890  
ITEM: BLOCKING DIODE, 3A, CLOSE CIRCUIT

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS, SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-891  
NASA FMEA #: 05-6G-2068-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 891  
ITEM: MPS/TVC ISO VLV CONTROL SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ NA]	[ NA]	[ NA]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA REDUNDANCY SCREENS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-891A  
NASA FMEA #: 05-6G-2068-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 891  
ITEM: MPS/TVC ISO VLV CONTROL SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ NA ]	[ NA ]	[ NA ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA REDUNDANCY SCREENS

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-892  
NASA FMEA #: 05-6G-2068-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 892  
ITEM: MPS/TVC ISO VLV CONTROL SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA SCREEN SHOULD BE BLANK PER NSTS 22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
 ASSESSMENT ID: HYDWSB-893 BASELINE [ ]  
 NASA FMEA #: 05-6G-2067-1A NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 893  
 ITEM: CURRENT LIMITER RESISTOR (1.21K) RETURN DRIVER  
 POWER CONTROL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-894  
NASA FMEA #: 05-6G-2067-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 894  
ITEM: CURRENT LIMITER RESISTOR (1.21K) RETURN POWER  
CONTROL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA SCREEN SHOULD BE BLANK PER NSTS 22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-895  
NASA FMEA #: 05-6G-2066-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 895  
ITEM: CURRENT LIMITER RESISTOR (1.21K) OPEN/CLOSE  
DRIVERS POWER CONTROL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-896  
NASA FMEA #: 05-6G-2066-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 896  
ITEM: CURRENT LIMITER RESISTOR (1.21K) POWER CONTROL

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

2/1R CRITICALITY IS BASED ON INABILITY TO CENTER ENGINE FOR RE-ENTRY. REF. MDAC ID #497, FMEA-02-6-A06-3. NASA SCREENS SHOULD BE BLANK PER NSTS-22206.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87	NASA DATA:
ASSESSMENT ID: HYDWSB-897	BASELINE [    ]
NASA FMEA #: 05-6G-2065-1A	NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 897  
ITEM: ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A	B	C
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-898  
NASA FMEA #: 05-6G-2065-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 898  
ITEM: ISOLATION DIODE (SYSTEM 1)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-899  
NASA FMEA #: 05-6G-2064-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 899  
ITEM: CONTROLLER, HYBRID DRIVER, TYPE III (CLOSE)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH THE NASA FMEA/CIL SCREEN B. REDUNDANCY IS ACTIVATED BY AUTOMATIC DETECTION AND SWITCHOVER, WHICH PASSES THE INFLIGHT DETECTABILITY SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-900  
NASA FMEA #: 05-6G-2064-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 900  
ITEM: CONTROLLER, HYBRID DRIVER, TYPE III (CLOSE)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-901 BASELINE [ ]  
NASA FMEA #: 05-6G-2056-1 NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 901  
ITEM: CONTROLLER, HYBRID DRIVER, TYPE III (OPEN)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-902  
NASA FMEA #: 05-6G-2056-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 902  
ITEM: CONTROLLER, HYBRID DRIVER, TYPE III (OPEN)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-903  
NASA FMEA #: 05-6G-2063-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 903  
ITEM: INDICATOR (DS1,2,3)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[    ]
COMPARE	[   /   ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-904  
NASA FMEA #: 05-6G-2063-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 904  
ITEM: INDICATOR (DS1,2,3)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-905  
NASA FMEA #: 05-6G-2062-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 905  
ITEM: MDM INPUT CURRENT LIMITER RESISTOR (5.1K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-906  
NASA FMEA #: 05-6G-2061-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 906  
ITEM: ISOLATION DIODE (MONITOR CIRCUIT)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-906A  
NASA FMEA #: 05-6G-2061-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 906  
ITEM: ISOLATION DIODE (MONITOR CIRCUIT)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-907  
NASA FMEA #: 05-6G-2060-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 907  
ITEM: CURRENT LIMITER RESISTOR (1.2K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-907A BASELINE [ ]  
NASA FMEA #: 05-6G-2060-1A NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 907  
ITEM: CURRENT LIMITER RESISTOR (1.2K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-908  
NASA FMEA #: 05-6G-2059-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 908  
ITEM: GSE ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-909  
NASA FMEA #: 05-6G-2058-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 909  
ITEM: MDM ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA ASSESSMENT. PYROs (UNLIKE REDUNDANT)  
LOWERS CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-910  
NASA FMEA #: 05-6G-2057-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 910  
ITEM: VEHICLE ISOLATION DIODE

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-911  
NASA FMEA #: 05-6G-2055-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 911  
ITEM: LG HYDRAULIC ISOLATION VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-912  
NASA FMEA #: 05-6G-2055-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 912  
ITEM: LG HYDRAULIC ISOLATION VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-913  
NASA FMEA #: 05-6G-2055-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 913  
ITEM: LG HYDRAULIC ISOLATION VLV SW

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-914  
NASA FMEA #: 05-6G-2054-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 914  
ITEM: ISO VLV CTL CIRCUIT RESISTOR (1.21K)

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88  
ASSESSMENT ID: HYDWSB-1171X  
NASA FMEA #: 06-3A-0633-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1171  
ITEM: BLOW-OFF STEAM VENT PLUG

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

CHANGE "FAILURE MODE" ON 06-3A-0633-1 TO "RESTRICTED FLOW THROUGH STEAM VENT NOZZLE". CHANGE "CAUSES" TO "STUCK OR INJECTED BLOW-OFF STEAM VENT PLUG."

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-1441X  
NASA FMEA #: 06-3A-0607-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1441  
ITEM: GN2 REGULATOR VALVE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID: HYDWSB-1751X  
NASA FMEA #: 05-6W-2021-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1751  
ITEM: CB

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
ASSESSMENT ID: HYDWSB-1761X  
NASA FMEA #: 05-6WA-2129-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1761  
ITEM: BY-PASS RELAY

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID: HYDWSB-1771X  
NASA FMEA #: 05-6W-2051-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1771  
ITEM: BOILER CONTROL POWER/HEATER SWITCH

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ NA] [ ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ X ]

## REMARKS:

SCREEN B NOT APPLICABLE FOR STANDBY REDUNDANCY. FAILURE DOES NOT MEET CIL CRITERIA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
ASSESSMENT ID: HYDWSB-1791X  
NASA FMEA #: 05-6W-2054-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1791  
ITEM: BOILER CONTROL SW

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ] *
IOA	[ 3 /1R ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88 NASA DATA:  
 ASSESSMENT ID: HYDWSB-1832X BASELINE [ ]  
 NASA FMEA #: 05-6W-2086-1B NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 1832  
 ITEM: CONTROL BUS RESISTORS, WSB CNTRLR PWR HTR SW

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
 ASSESSMENT ID: HYDWSB-1834X  
 NASA FMEA #: 05-6W-2086-1D  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: HYD/WSB  
 MDAC ID: 1834  
 ITEM: CONTROL BUS RESISTORS, WSB N2 SUPPLY SWITCH  
 LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID: HYDWSB-1841X  
NASA FMEA #: 05-6WA-2055-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1841  
ITEM: SWITCH, "APU/HYD BOILER N2 SUPPLY"

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
ASSESSMENT ID: HYDWSB-1862X  
NASA FMEA #: 05-6W-2208-1B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1862  
ITEM: HYBRID DRIVER CIRCUIT

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
 ASSESSMENT ID: HYDWSB-1865X  
 NASA FMEA #: 05-6W-2208-1E

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 1865  
 ITEM: HDC TYPE 1, GRD BOILER ON CMD

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [ NA ]    [ NA ]    [ NA ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
ASSESSMENT ID: HYDWSB-1901X  
NASA FMEA #: 05-6W-2259A-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 1901  
ITEM: DIODE, GND CMD ISOL, 1A, WSB CNTRLR PWR CKTRY

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ P ]	[ ]	[ P ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ NA ] [ NA ] [ NA ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88  
ASSESSMENT ID: HYDWSB-5000X  
NASA FMEA #: 02-6-C06-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 5000  
ITEM: VALVE, CHECK, L.G. HYD. CKT. FUSELAGE RETURN  
LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ] *
IOA	[ 1 /1 ]	[ NA ]	[ NA ]	[ NA ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88  
ASSESSMENT ID: HYDWSB-5001X  
NASA FMEA #: 02-6-C06-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 5001  
ITEM: VALVE, CHECK, L.G. HYD. CKT. FUSELAGE RETURN  
LINE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ NA ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ NA ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS:

NSTS 22206 INDICATES 3/2R AS APPROPRIATE CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: HYDWSB-8001X  
NASA FMEA #: 05-6G-2078-1

NASA DATA:  
BASELINE [ X ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8001  
ITEM: DIODE, SURGE SUPPR. (3 AMP) HYD MN PUMP DEPRESS  
VLV SOL. CKT

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: HYDWSB-8002X  
NASA FMEA #: 05-6G-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8002  
ITEM: DIODE, ISOL, HYD MN PMP DEPRESS VALVE SOLENOID  
CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: HYDWSB-8003X  
NASA FMEA #: 05-6G-2087-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8003  
ITEM: DIODE, ISOL (3A), HYD MN PMP DEPRESS VLV  
SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: HYDWSB-8004X  
NASA FMEA #: 05-6G-2095-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8004  
ITEM: HYBRID DRIVER TYPE 4, HYD L.G. RETR/CIRC VLV  
SOL. CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88

ASSESSMENT ID: HYDWSB-8005X

NASA FMEA #: 05-6G-00100-1B

**NASA DATA:**

BASELINE [ X ]

NEW [ ]

SUBSYSTEM: HYD/WSB

MDAC ID: 8005

ITEM: DIODE, HYD MN PUMP DEPRESS VLV SOL CKT.

LEAD ANALYST: P. BYNUM

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT		A	B	C	
HDW/FUNC					
NASA	[ 2 /1R ]	[ F ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]      [   ]      [   ]      [   ]      [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

## REMARKS :

THIS PRE 51-L FMEA/CIL. ITEM NOT REFLECTED AS POST 51-L CIL ITEM  
IN THE PRE CCB CIL WAIVER PACKAGE (8 DECEMBER 1987). IOA  
RECOMMENDS THIS AS A CIL ITEM.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88 NASA DATA:  
ASSESSMENT ID: HYDWSB-8161X BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1NA NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8161  
ITEM: CONTROL FUSE (3A) HYD CIRC PUMP CNTRL

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88 NASA DATA:  
ASSESSMENT ID: HYDWSB-8162X BASELINE [ ]  
NASA FMEA #: 05-6G-200400-1NB NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8162  
ITEM: POWER FUSE (150 AMP), H40 CIRC PUMP CNTL

LEAD ANALYST: W. DAVIDSON

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM	
FLIGHT HDW/FUNC		A	B	C		
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]	*
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]	
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]	

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]      [ NA]      [ NA]      [ NA]      [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS :

THE FUNCTION OF THIS ITEM IS TO PROVIDE POWER TO ONE CIRC PUMP.  
LOSS OF ALL REDUNDANCY MEANS LOSS OF POWER TO ONE CIRC PUMP.  
LOSS OF ONE CIRC PUMP WILL NOT RESULT IN LOSS OF LIFE OR VEHICLE,  
NOR WILL IT RESULT IN LOSS OF MISSION. LOSS OF A CIRC  
PUMP IS CRITICALITY 3/3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-8461X  
NASA FMEA #: 05-6G-200400-1B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8461  
ITEM: PWR SW S25

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-8462X  
NASA FMEA #: 05-6G-200400-1C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8462  
ITEM: PWR SW S25

LEAD ANALYST: J. DUVAL

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8751X  
NASA FMEA #: 05-6G-200300-1C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8751  
ITEM: FUSE, (1A) LG RETRACT/CIRC VLV SOLENOID

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8752X  
NASA FMEA #: 05-6G-200300-1D

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8752  
ITEM: RESISTOR, (1.21K), LG RETRACT/CIRC VLV SOLENOID  
CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8753X  
NASA FMEA #: 05-6G-200300-1E

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8753  
ITEM: RPC, LG RETRACT/CIRC VLV SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8754X  
NASA FMEA #: 05-6G-200300-1F

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8754  
ITEM: RPC, LG RETRACT/CIRC VLV SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8755X  
NASA FMEA #: 05-6G-200300-1G

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8755  
ITEM: HYBRID DRIVER, TYPE 4, LG RETRACT/CIRC VLV  
SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
 ASSESSMENT ID: HYDWSB-8756X  
 NASA FMEA #: 05-6G-200300-1I

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 8756  
 ITEM: HYBRID DRIVER, TYPE 1, LG RETRACT/CIRC VLV  
 SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
 ASSESSMENT ID: HYDWSB-8757X  
 NASA FMEA #: 05-6G-200300-1J

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: HYD/WSB  
 MDAC ID: 8757  
 ITEM: HYBRID DRIVER, TYPE 1, LG RETRACT/CIRC VLV  
 SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8758X  
NASA FMEA #: 05-6G-200300-1KA

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8758  
ITEM: DIODE, SURGE SUPP, (3A), LG RETRACT/CIRC VLV  
SOLENOID CKT

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ ]	[ ]	[ ]
-------	-----	-----	-----	-----

(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
PER NSTS 22206 DOCUMENT

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-8759X  
NASA FMEA #: 05-6G-200300-1KB

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8759  
ITEM: DIODE, BUS ISOLATION, (1A) (3A)

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ NA]	[ NA]	[ NA]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA SCREEN CORRECT PER NSTS 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87 NASA DATA:  
ASSESSMENT ID: HYDWSB-8761X BASELINE [ ]  
NASA FMEA #: 05-6G-200300-1KC NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8761  
ITEM: DIODES, RPC PWR ISOLATION, (2A)(12A)

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA SCREENS CORRECT PER NSTS 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/87  
ASSESSMENT ID: HYDWSB-8762X  
NASA FMEA #: 05-6G-200300-1KD

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8762  
ITEM: DIODE, GROUND ISOLATION, RETRACT/CIR VLV,  
(2A) (15A)

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ ]	[ ]	[ ]	(ADD/DELETE)
-------	-----	-----	-----	-----	--------------

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NASA SCREENS CORRECT PER NSTS 22206 DOCUMENT.

\_\_\_\_\_

NASA DATA:  
 BASELINE [     ]  
 NEW [ X ]

\_\_\_\_\_

\_\_\_\_\_

**Abstract**

---

**Abstract**

—

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
 ASSESSMENT ID: HYDWSB-8764X  
 NASA FMEA #: 05-6G-200300-1KF  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: HYD/WSB  
 MDAC ID: 8764  
 ITEM: RESISTOR, MONITOR ISOLATION, (1.8K) (2.2K) (5.1K)  
 LEAD ANALYST: P. BYNUM

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

## REMARKS:

NASA SCREENS CORRECT PER NSTS 22206 DOCUMENT



```

ASSESSMENT DATE: 2/13/88      NASA DATA:
ASSESSMENT ID:   HYDWSB-8765X  BASELINE [    ]
NASA FMEA #:     05-6G-2003000-1KG  NEW [ X ]

SUBSYSTEM:       HYD/WSB
MDAC ID:         8765
ITEM:            RESISTOR, SHORT CKT PROTECTION

LEAD ANALYST:    P. BYNUM

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 3 /3 ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ ]	[ N ]	[ ]	[ N ]

[   /   ]      [   ]      [ F ]      [   ]      [   ]  
(ADD/DELETE)

ADEQUATE [ ]  
INADEQUATE [ ]

RESISTOR DOES NOT MEET NSTS 22206 DEFINITION OF STANDBY REDUNDANT

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-8766X  
NASA FMEA #: 05-6G-2003000-1KH

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 8766  
ITEM: LG RETRACT/CIRC VLV SW

LEAD ANALYST: P. BYNUM

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA SCREENS CORRECT PER NSTS 22206 DOCUMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88  
ASSESSMENT ID: HYDWSB-9091X  
NASA FMEA #: 05-6G-2058-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 9091  
ITEM: MDM ISOLATION DIODE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

SCREENS SHOULD BE BLANK PER NSTS-22206.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88  
ASSESSMENT ID: HYDWSB-9101X  
NASA FMEA #: 05-6G-2057-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 9101  
ITEM: VEHICLE ISOLATION DIODE

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88                      NASA DATA:  
 ASSESSMENT ID: HYDWSB-9141X                  BASELINE [    ]  
 NASA FMEA #: 05-6G-2054-1A                   NEW [ X ]

SUBSYSTEM:              HYD/WSB  
 MDAC ID:                9141  
 ITEM:                    ISO VLV CTL CIRCUIT RESISTOR (1.21K)

LEAD ANALYST:        W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS:    (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/13/88  
ASSESSMENT ID: HYDWSB-9501X  
NASA FMEA #: 05-6G-2053-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: HYD/WSB  
MDAC ID: 9501  
ITEM: HYDRAULIC PRESSURE METER

LEAD ANALYST: W. DAVIDSON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ] *
IOA	[ 3 / 3 ]	[ NA ]	[ NA ]	[ NA ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

## APPENDIX D

### CRITICAL ITEMS

# **APPENDIX D** **POTENTIAL CRITICAL ITEMS**

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
06-3A-0602-1	101	WATER SPRAY BOILER	RESTRICTED FLOW
06-3A-0618-1	102	WATER SPRAY BOILER	EXTERNAL LEAKAGE
06-3A-0618-1	103	LINES AND FITTINGS	LEAKAGE
06-3A-0619-1	103	LINES AND FITTINGS	LEAKAGE
06-3A-0603-4	104	HEAT EXCHANGER ASSY	RESTRICTED FLOW
06-3A-0603-6	104	HEAT EXCHANGER ASSY	RESTRICTED FLOW
06-3A-0602-3	105	HEAT EXCHANGER ASSY	EXTERNAL LEAKAGE
06-3A-0602-4	105	HEAT EXCHANGER ASSY	EXTERNAL LEAKAGE
06-3A-0603-2	106	HEAT EXCHANGER ASSY	CORE LEAKAGE
06-3A-0603-5	106	HEAT EXCHANGER ASSY	CORE LEAKAGE
06-3A-0603-1	107	HEAT EXCHANGER ASSY	HEADER LEAKAGE
06-3A-0605-2	108	SPRAY VALVE	FAILS TO OPEN
06-3A-0605-1	109	SPRAY VALVE	FAILS TO CLOSE
06-3A-0605-3	109	SPRAY VALVE	FAILS TO CLOSE
	118	HYDRAULIC/LUBE OIL	LOSS OF FLOW
06-3A-0616-3	126	LUBE OIL DRAIN	EXTERNAL LEAKAGE
06-3A-0616-2	126	LUBE OIL DRAIN	EXTERNAL LEAKAGE
06-3A-0608-3	133	WATER TANK	LEAKAGE - H2O EXT
06-3A-0608-1	134	WATER TANK	LEAKAGE - GN2 INT
06-3A-0608-2	134	WATER TANK	LEAKAGE - GN2 INT
06-3A-0613-2	136	WATER TANK FILL	EXTERNAL LEAKAGE
06-3A-0613-3	136	WATER TANK FILL	EXTERNAL LEAKAGE
06-3A-0609-1	142	GN2 TANK	BURST
	143	GN2 TANK	LEAKAGE
06-3A-0607-4	144	GN2 REGULATOR VALVE	FAILS TO CLOSE
06-3A-0607-1	145	GN2 REGULATOR VALVE	FAILS TO OPEN
06-3A-0607-3	146	GN2 REGULATOR RELIEF	FAILS TO CLOSE
06-3-0607-5	147	GN2 REGULATOR RELIEF	FAILS TO OPEN
06-3A-0606-1	148	GN2 SHUTOFF VALVE	FAILS TO OPEN
06-3A-0606-4	150	GN2 SHUTOFF VALVE	EXTERNAL LEAKAGE
06-3A-0615-3	152	GN2 FILL DISCONNECT	EXTERNAL LEAKAGE
06-3A-0615-2	152	GN2 FILL DISCONNECT	EXTERNAL LEAKAGE
06-3A-0614-3	154	GN2 VENT DISCONNECT	LEAKAGE, EXTERNAL
06-3A-0614-2	154	GN2 VENT DISCONNECT	LEAKAGE, EXTERNAL
	164	GN2 FILTER	LOSS OF FLOW
06-3A-0610-5	166	HYDRAULIC BYPASS VALV	EXTERNAL LEAKAGE
06-3A-0610-1	167	HYDRAULIC BYPASS VALV	FAILS IN BYPASS
02-6-SYSTEM-2	168	HYRAULIC RELIEF VALVE	EXTERNAL LEAKAGE
06-3A-0610-4	169	HYDRAULIC RELIEF VALV	RELIEF VALVE FAIL
06-3A-0610-3	170	HYDRAULIC RELIEF VALV	RELIEF VALVE FAIL
06-3-0628-2	172	HYDRAULIC BYPASS/RELI	ERRONEOUS OUTPUT
06-3-0628-2	173	HYDRAULIC BYPASS/RELI	OUT OF TOLERANCE
05-6WA-2051-1	177	BOILER CONTROL POWER	LOSS OF OUTPUT
05-6WA-2051-1	178	BOILER CONTROL POWER	FAILS TO CLOSE
05-6WA-2054-1	179	BOILER CNTRL SW	LOSS OF OUTPUT



NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
05-6WA-2054-1	180	BOILER CNTRL SW	FAILS TO CLOSE
05-6W-2179-2	189	RPC	FAILS ON
	197	HYBRID DRIVER CIRCUIT	CONTINUOUS OUTPUT
02-6-E24-1	401	ACCUMULATOR	EXTERNAL LEAKAGE
02-6-SYSTEM-2	402	ACCUMULATOR	EXTERNAL LEAKAGE
02-6-E24-5	403	ACCUMULATOR	STRUCTURAL FAILURE
02-6-E24-1	412	GN2 FILL VALVE	EXTERNAL LEAKAGE
02-6-SYSTEM-2	414	SSME ACCUMULATOR	EXTERNAL LEAKAGE
02-6-A16-3	417	SSME ACCUMULATOR	STRUCTURAL FAILURE
	431	PRESS ACTIVATED RELIEF	FAILS TO OPEN
02-6-SYSTEM-2	432	BLEED VALVE	FAILS TO REMAIN
02-6-SYSTEM-2	434	PRESS ACTUATED CNTRL	EXTERNAL LEAK
02-6-E27	439	FILTER	STRUCTURAL FAILURE
02-6-E02-1	448	QUICK DISCONNECTS	EXTERNAL LEAKAGE
02-6-E02-2	448	QUICK DISCONNECTS	EXTERNAL LEAKAGE
02-6-E02-1	449	QUICK DISCONNECT	EXTERNAL LEAKAGE
02-6-E02-2	449	QUICK DISCONNECT	EXTERNAL LEAKAGE
02-6-C08-1	450	QUICK DISCONNECT	EXTERNAL LEAKAGE
02-6-C08-2	450	QUICK DISCONNECT	EXTERNAL LEAKAGE
02-6-A02-2	451	QUICK DISCONNECT	INADVERTENT DISCO
02-6-A02-12	451	QUICK DISCONNECT	INADVERTENT DISCO
02-6-A02-1	452	QUICK DISCONNECT	INADVERTENT DISCO
02-6-SYSTEM-2	453	QUICK DISCONNECT	EXTERNAL LEAK
02-6-SYSTEM-2	454	QUICK DISCONNECT	EXTERNAL LEAK
02-6-A07-2	456	CHECK VALVE	FAILS TO OPEN
02-6-SYSTEM-2	457	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-A11-1	457	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-SYSTEM-2	458	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-A15-1	458	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-SYSTEM-2	459	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-A15-1	459	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-SYSTEM-2	460	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-E28-1	460	HOSE AND SWIVEL ASSY	EXTERNAL LEAKAGE
02-6-H04-1	461	NOSE WHEEL STEERING	STRUCTURAL FAILURE
02-6-G10-1	462	MAIN LANDING GEAR	STRUCTURAL FAILURE
02-6-G11-1	463	MAIN LANDING GEAR	STRUCTURAL FAILURE
02-6-SYSTEM-3	464	HYDRAULIC LINE	LINE RUPTURE
02-6-SYSTEM-3	465	HYDRAULIC LINE	LINE RUPTURE
02-6-SYSTEM-3	466	HYDRAULIC LINE	LINE RUPTURE
02-6-SYSTEM-3	467	HYDRAULIC LINE	LINE RUPTURE
02-6-SYSTEM-3	468	HYDRAULIC LINE	LINE RUPTURE
02-6-G04-1	469	REDUNDANT SHUTOFF VLV	FAILS TO CLOSE
02-6-SYSTEM-2	471	REDUNDANT SHUTOFF VLV	EXTERNAL LEAK
02-6-G05-1	472	LANDING GEAR DUMP SOL	FAILS TO OPEN
02-6-SYSTEM-2	474	LANDING GEAR DUMP SOL	EXTERNAL LEAK
02-6-E23-1	476	PRIORITY VALVE	LEAKAGE, INTERNAL
02-6-E23-2	477	PRIORITY VALVE	LEAKAGE, INTERNAL
02-6-C07-2	479	LANDING GEAR ISOLATION	FAILS TO OPEN
02-6-C07-2	480	LANDING GEAR ISOLATION	PREMATURE CLOSE
02-6-C07-1	481	LANDING GEAR ISOLATION	FAILS TO CLOSE

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
02-6-C07-1	482	LANDING GEAR ISOLATION	PREMATURE OPEN
02-6-SYSTEM-2	484	LANDING GEAR ISOLATION	EXTERNAL LEAK
02-6-G13-2	486	LANDING GEAR CONTROL	PREMATURE OPEN
	487	LANDING GEAR CONTROL	FAILS TO CLOSE
02-6-SYSTEM-2	489	LANDING GEAR CONTROL	EXTERNAL LEAK
02-6-G14-1	490	RESTRICTOR, HYDRAULIC	BLOCKED
02-6-G02-1	491	LANDING GEAR CONTROL	FAILS TO SWITCH
02-6-G02-2	492	LANDING GEAR CONTROL	PREMATURE SWITCH
02-6-SYSTEM-2	494	LANDING GEAR CONTROL	EXTERNAL LEAK
02-6-A06-1	495	MPS/TVC SHUTOFF VALVE	FAILS TO TRANSFER
02-6-A06-2	496	MPS/TVC SHUTOFF VALVE	PREMATURE TRANSFER
02-6-A06-3	497	MPS/TVC SHUTOFF VALVE	FAILS TO TRANSFER
02-6-SYSTEM-2	498	MPS/TVC SHUTOFF VALVE	EXTERNAL LEAK
02-6-SYSTEM-2	600	PUMP (MECHANICAL)	STRUCTURAL FAILURE
02-6-E06-5	601	PUMP (MECHANICAL)	PHYSICAL BINDING
02-6-SYSTEM-2	603	DEPRESSURIZATION VLV	STRUCTURAL FAILURE
02-6-E06-2	604	DEPRESSURIZATION VLV	FAILS TO OPEN
02-6-E06-1	605	DEPRESSURIZATION VLV	FAILS TO CLOSE
02-6-E06-1	606	DEPRESSURIZATION VLV	PHYSICAL BINDING
02-6-SYSTEM-2	607	DEPRESSURIZATION VLV	EXTERNAL LEAKAGE
02-6-E06-3	608	DEPRESSURIZATION VLV	SHORTED
02-6-SYSTEM-2	609	PRESSURE COMPENSATOR	STRUCTURAL FAILURE
02-6-E06-5	610	PRESSURE COMPENSATOR	FAILS TO MAXIMUM
02-6-E06-3	611	PRESSURE COMPENSATOR	FAILS TO MINIMUM
02-6-E30-2	612	FLEX HOSE (SUCTION)	STRUCTURAL FAILURE
02-6-E30-2	613	FLEX HOSE (SUPPLY)	STRUCTURAL FAILURE
02-6-E30-2	614	FLEX HOSE (CASE)	STRUCTURAL FAILURE
02-6-E09-2	619	CHECK VALVE (SUPPLY)	FAILS TO CLOSE
02-6-SYSTEM-2	620	CHECK VALVE (SUPPLY)	EXTERNAL LEAKAGE
02-6-SYSTEM-2	623	CHECK VALVE (CASE)	EXTERNAL LEAKAGE
02-6-E03-5	624	HYDRAULIC RESERVOIR	STRUCTURAL FAILURE
02-6-E03-1	626	HYDRAULIC RESERVOIR	INTERNAL LEAKAGE
02-6-E03-1	627	HYDRAULIC RESERVOIR	INTERNAL LEAKAGE
02-6-SYSTEM-2	629	LOW PRESSURE RELIEF	FAILS TO CLOSE
02-6-E03-1	630	LOW PRESSURE RELIEF	INTERNAL LEAKAGE
02-6-E03-1	631	LOW PRESSURE RELIEF	EXTERNAL LEAKAGE
02-6-SYSTEM-2	632	HORIZONTAL/BLEED SAMP	EXTERNAL LEAKAGE
02-6-SYSTEM-2	633	VERTICAL/BLEED SAMPLE	EXTERNAL LEAKAGE
02-6-C05-1	643	E.T. UMBILICAL RETRAC	RUPTURE
02-6-C05-1	644	E.T. UMBILICAL RETRAC	EXTERNAL LEAKAGE
02-6-C05-3	646	E.T. UMBILICAL RETRAC	PHYSICAL BINDING
02-6-C05-4	646	E.T. UMBILICAL RETRAC	PHYSICAL BINDING
02-6-C09-1	669	FLEX HOSE & SWIVEL	EXTERNAL LEAKAGE
02-6-C09-1	670	FLEX HOSE & SWIVEL	EXTERNAL LEAKAGE
02-6-C10-2	671	CHECK VALVE	FAILS TO OPEN
02-6-SYSTEM-2	673	CHECK VALVE	EXTERNAL LEAKAGE
02-6-SYSTEM-2	677	MANUAL DRAIN VALVE	EXTERNAL LEAKAGE
02-6-SYSTEM-2	699	CIRCULATION PUMP CHECK	STRUCTURAL FAILURE
02-6-E10-2	704	CIRCULATION PUMP CHECK	FAILS TO CLOSE
02-6-SYSTEM-2	708	SUPPLY FILTER	STRUCTURAL FAILURE

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
02-6-E08-2	709	SUPPLY FILTER	RESTRICTED FLOW
02-6-SYSTEM-2	713	RELIEF VALVE	STRUCTURAL FAILURE
02-6-E08-6	715	RELIEF VALVE	FAILS TO CLOSE
02-6-SYSTEM-2	719	CASE FILTER	EXTERNAL LEAKAGE
02-6-SYSTEM-2	721	RETURN FILTER	EXTERNAL LEAKAGE
02-6-E08-4	722	RETURN FILTER	RESTRICTED FLOW
	724	FREON/OIL HEAT EXCHANGE	INTERNAL LEAKAGE
02-6-SYSTEM-2	725	FREON/OIL HEAT EXCHANGE	EXTERNAL LEAKAGE
02-6-SYSTEM-2	730	THERMAL CONTROL VALVE	EXTERNAL LEAKAGE
05-6G-201000-1	814	MASTER EVENTS CONTROL	OPEN
05-6G-2080-2	848	HYBRID DRIVER	INADVERTENT OUTPUT
05-6G-2080-1	849	HYBRID DRIVER	LOSS OF OUTPUT
05-6G-2088-2	860	SWITCH, HYD MAIN PUMP	FAILS IN "NORM"
05-6G-2088-1	861	SWITCH, HYD MAIN PUMP	FAILS IN "LOW"
05-6G-200100-1J	872	BLOCKING DIODE (15A)	OPEN
05-6G-200100-1J	872	BLOCKING DIODE (15A)	OPEN
05-6G-2085-1	874	BLOCKING DIODE (12A)	OPEN
05-6G-200300-1A	877	LG RETRACT/CIRC VLV	FAILS IN "OPEN"
05-6G-2072-2	884	HYBRID DRIVER	CONTINUOUS OUTPUT
05-6G-2071-2	886	HYBRID DRIVER	CONTINUOUS OUTPUT
05-6G-2068-3	891	MPS/TVC ISO VLV CONTR	INADVERTENT/PREMA
05-6G-2068-2	891	MPS/TVC ISO VLV CONTR	INADVERTENT/PREMA
05-6G-2064-2	899	CONTROLLER, HYBRID DR	INADVERTENT OUTPUT
05-6G-2056-1	901	CONTROLLER, HYBRID DR	LOSS OF OUTPUT
05-6G-2056-3	902	CONTROLLER, HYBRID DR	INADVERTENT OUTPUT
05-6G-2057-1	910	VEHICLE ISOLATION DIO	OPEN
05-6G-2055-3	911	LG HYDRAULIC ISOLATION	INADVERTENTLY CON
05-6G-2055-2	912	LG HYDRAULIC ISOLATION	INADVERTENTLY CON
06-3A-0633-1	1171	BLOW-OFF STEAM VENT	RESTRICTED FLOW
06-3A-0607-2	1441	GN2 REGULATOR VALVE	EXTERNAL LEAKAGE
05-6WA-2129-2	1761	BY-PASS RELAY	FAILS OPEN
05-6WA-2055-2	1841	SWITCH, "APU/HYD BOIL	SWITCH FAILS CLOSE
02-6-C06-2	5000	VALVE, CHECK	FAILS CLOSED
02-6-C06-2	5001	VALVE, CHECK	FAILS OPEN
05-6G-2078-1	8001	DIODE, SURGE SUPPR.	INTERNAL SHORT
05-6G-2086-1	8002	DIODE, ISOL	FAILS OPEN
05-6G-2087-1	8003	DIODE, ISOL (3A)	FAILS OPEN
05-6G-2095-2	8004	HYBRID DRIVER TYPE 4	INADVERTENT OUTPUT
05-6G-00100-1B	8005	DIODE, HYD MN PUMP	OPEN (ELECTRICAL)
05-6G-200300-1K	8763	DIODE, GROUND ISOL	SHORT TO GROUND



## APPENDIX E DETAILED ANALYSIS

This appendix contains the IOA analysis worksheets supplementing previous results reported in STSEOS Working Paper 1.0-WP-VA86001-20, Analysis of the Hydraulics/Water Spray Boiler Subsystem, (20 December 1987). Prior results were obtained independently and documented before starting the FMEA/CIL assessment activity. Supplemental analysis was performed to address failure modes not previously considered by the IOA. Each sheet identifies the hardware item being analyzed, parent assembly and function performed. For each failure mode possible causes are identified, and hardware and functional criticality for each mission phase are determined as described in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986. Failure mode effects are described at the bottom of each sheet and worst case criticality is identified at the top.

### LEGEND FOR IOA ANALYSIS WORKSHEETS

-----

#### Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

#### Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle.
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission.

#### Redundancy Screen A:

- 1 = Is Checked Out PreFlight
- 2 = Is Capable of Check Out PreFlight
- 3 = Not Capable of Check Out PreFlight
- NA = Not Applicable

#### Redundancy Screens B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/08/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 2/1R  
MDAC ID: 1171 ABORT: 2/1R

ITEM: BLOW-OFF STEAM VENT PLUG  
FAILURE MODE: RESTRICTED FLOW THROUGH STEAM DUMP NOZZLE

LEAD ANALYST: J. DUVAL SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER
- 2) WATER SPRAY BOILER ASSY
- 3) STEAM DUMP NOZZLE
- 4) BLOW-OFF STEAM VENT PLUG
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 3 ] B [ P ] C [ P ]

LOCATION: 50V58NZ1(VS70-580999B)  
PART NUMBER:

CAUSES: VENT PLUG STUCK OR INJECTED BLOW-OFF STEAM

EFFECTS/RATIONALE:

DURING BOILER OPERATION THE STEAM WOULD HAVE NO ESCAPE ROUTE,  
ACTIVATING THE STEAM VENT RELIEF VALVE. LOSS OF SYSTEM.

REFERENCES: VS70-580999B, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/09/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 2/1R  
MDAC ID: 1441 ABORT: 2/1R

ITEM: GN2 REGULATOR VALVE  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: W. DAVIDSON

SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER
- 2) GN2 SYSTEM
- 3) GN2 REGULATOR VALVE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	2/1R
LIFTOFF:	2/1R		TAL:	2/1R
ONORBIT:	2/1R		AOA:	2/1R
DEORBIT:	2/1R		ATO:	2/1R
LANDING/SAFING:	2/1R			

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 50V58HX4(VS70-580999B)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, PIECE-PART FAILURE

EFFECTS/RATIONALE:

LOSS OF GN2 PREVENTS EXPULSION OF H2O TO THE BOILER RESULTING IN  
THE LOSS OF COOLING AND THE SYSTEM.

REFERENCES: VS70-580999B, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/26/88  
SUBSYSTEM: HYD/WSB  
MDAC ID: 1751

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: 3/3

ITEM: CB  
FAILURE MODE: CB FAILS CLOSED, CANNOT BE OPENED

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL L4
- 3) CB (131, 135)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 31V73A4 (VS70-580119E)  
PART NUMBER:

CAUSES: JAMMING, PIECE-PART FAILURE

EFFECTS/RATIONALE:

CONSTANT POWER TO CONTROLLER A/B CONTACT ON APU/HYD BOILER  
CONTROLLER POWER/HEATER SWITCH.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 2/1R  
MDAC ID: 1761 ABORT: 2/1R

ITEM: BY-PASS RELAY  
FAILURE MODE: FAILS OPEN OR SHORTED TO GROUND

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL R2
- 3) BY-PASS RELAY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 32V73A2 (VS70-580119E)  
PART NUMBER:

CAUSES: CONTAMINATION, STRUCTURAL FAILURE

EFFECTS/RATIONALE:

LOSS OF 115VAC POWER TO BOILER CONTROLLER AND BYPASS VALVE. LOSS OF HYDRAULIC FLUID AND LUBE OIL COOLING. POSSIBLE LOSS OF SYSTEM ON ASCENT.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/26/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 1771 ABORT: 3/3

ITEM: BOILER CONTROL POWER/HEATER SWITCH  
FAILURE MODE: INADVERTENT OPERATION (CLOSING) OF SWITCH

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL R2
- 3) BOILER CONTROL POWER/HEATER SW (S41)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	3/1R	ATO:	3/3
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [NA ] C [ P ]

LOCATION: 32V73A2(VS70-580119E)  
PART NUMBER:

CAUSES: STRUCTURAL FAILURE, MECHANICAL SHOCK

EFFECTS/RATIONALE:

POWER WOULD BE APPLIED TO HYBRID DRIVERS ANT TO BYPASS VALVE.  
FAILURE DOES NOT MEET CIL CRITERIA.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/26/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 1791 ABORT: /NA

ITEM: BOILER CONTROL SW  
FAILURE MODE: INADVERTENT OPERATION, PREMATURE TRANSFER TO "ON"

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL R2
- 3) BOILER CNTRL SW (S38)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A2 (VS70-580119E)  
PART NUMBER:

CAUSES: CONTAMINATION, STRUCTURAL FAILURE, VIBRATION

EFFECTS/RATIONALE:  
POWER TO SPRAY VALVE CONTROL CIRCUITS REMAINS ON.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 1832 ABORT: 3/3

ITEM: CONTROL BUS RESISTORS, WSB CNTRLR PWR HTR SW  
FAILURE MODE: SHORTS

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER
- 2) PANEL R2
- 3) RESISTOR - CURRENT LIMITER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A2 (VS70-580119E)

PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:  
NONE.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 1834 ABORT: 3/3

ITEM: CONTROL BUS RESISTORS, WSB N2 SUPPLY SWITCH  
FAILURE MODE: SHORTS

LEAD ANALYST: W. DAVIDSON

SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL R2
- 3) RESISTOR - CURRENT LIMITER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	3/3		RTLS:	3/3
LIFTOFF:	3/3		TAL:	3/3
ONORBIT:	3/3		AOA:	3/3
DEORBIT:	3/3		ATO:	3/3
LANDING/SAFING:	3/3			

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A2 (VS70-580119E)  
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:  
NONE.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/26/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 2/1R  
MDAC ID: 1841 ABORT: 2/1R

ITEM: SWITCH, "APU/HYD BOILER N2 SUPPLY"  
FAILURE MODE: SWITCH FAILS CLOSED (ALL CONTACTS)

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) PANEL R2
- 3) BOILER N2 SUPPLY SW (S44)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 32V73A2 (VS70-580119E)

PART NUMBER:

CAUSES: VIBRATION, MECHANICAL FAILURE, STRUCTURAL FAILURE

EFFECTS/RATIONALE:

LOSS OF ABILITY TO EXPELL WATER. LOSS OF SYSTEM DURING ENTRY.  
WSB IN POOL MODE FOR ASCENT.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 1862 ABORT: 3/1R

ITEM: HYBRID DRIVER CIRCUIT  
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) LOAD CONTROL ASSY
- 3) HYBRID DRIVER CIRCUIT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [NA ] C [ P ]

LOCATION: 32V73A2 (V70-580119E)  
PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

INADVERTENT OUTPUT CLOSING VALVE. REDUNDANT CONTROLLER RESTORES  
NORMAL OPERATION.

REFERENCES: V70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II,  
SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88  
SUBSYSTEM: HYD/WSB  
MDAC ID: 1865

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /NA

ITEM: HDC TYPE 1, GRD BOILER ON CMD  
FAILURE MODE: OPEN, SHORTED TO GROUND, INADVERTENT OUTPUT

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) LOAD CONTROL ASSY
- 3) HYBRID DRIVER CIRCUIT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A2(V70-580119E)  
PART NUMBER:

CAUSES: THERMAL STRESS, STRUCTURAL FAILURES, VIBRATION

EFFECTS/RATIONALE:  
NOT ACTIVE DURING FLIGHT.

REFERENCES: V70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II,  
SECT 12



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/27/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 1901 ABORT: /NA

ITEM: DIODE, GND CMD ISOL, 1A, WSB CNTRLR PWR CKTRY  
FAILURE MODE: OPEN

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) WATER SPRAY BOILER - EPD&C
- 2) AFT PCA
- 3) ISOLATION DIODE (AICR6, 8)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 55V76A135(VS70-580119E)  
PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:  
NONE

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/01/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 1/1  
MDAC ID: 5000 ABORT: /NA

ITEM: VALVE, CHECK, L.G. HYD. CKT. FUSELAGE RETURN LINE  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC DISTRIBUTION, MONITORING, AND CONTROL
- 2) CHECK VALVE, AFT FUS. HYD. RETURN LINE
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	1/1
LIFTOFF:	/NA	TAL:	1/1
ONORBIT:	/NA	AOA:	1/1
DEORBIT:	/NA	ATO:	1/1
LANDING/SAFING:	1/1		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 50V58CV19, 20, 21 (VS70-580999)  
PART NUMBER: ME284-0434-1012, -1014 -

CAUSES: CONTAMINATION, BINDING

EFFECTS/RATIONALE:

INTERFERES WITH PROPER GEAR DEPLOY AND BREAKING.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/2R  
MDAC ID: 5001 ABORT: 2/1R

ITEM: VALVE, CHECK, L.G. HYD. CKT. FUSELAGE RETURN LINE  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC DISTRIBUTION, MONITORING, AND CONTROL
- 2) CHECK VALVE, AFT FUS. HYD. RETURN LINE
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	3/2R
ONORBIT:	3/2R	AOA:	3/2R
DEORBIT:	3/2R	ATO:	3/2R
LANDING/SAFING:	3/2R		

REDUNDANCY SCREENS: A [ 3 ] B [NA ] C [ P ]

LOCATION: 50V58CV19, 20, 21 (VS70-580999)  
PART NUMBER: ME284-0434-1012, -1014

CAUSES: CONTAMINATION, BROKEN SPRING, DAMAGED SEAT/POPPET

EFFECTS/RATIONALE:

FAILS TO PROTECT AGAINST LOSS OF ALL HYDRAULIC FLUID IN CASE OF  
LEAK UPSTREAM OF CHECK VALVE.

REFERENCES: VS70-580119E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/02/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8001 ABORT: 3/1R

ITEM: DIODE, SURGE SUPPR. (3 AMP) HYD MN PUMP DEPRESS  
VLV SOL. CKT  
FAILURE MODE: INTERNAL SHORT

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC MAIN PUMP
- 2) DEPRESS VALVE SOLENOID CKT
- 3) AFT PCA
- 4) DIODE, SURGE SUPPRESSION (3 AMP)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	3/1R
DEORBIT:	3/1R	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 55V76A135 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, THERMAL STRESS, MECHANICAL SHOCK

EFFECTS/RATIONALE: LOSS OF ARC SUPPRESSION FOR CIRCUITRY, LOSS OF REDUNDANCY, SECOND FAILURE WILL RESULT IN THE LOST CAPABILITY TO ENERGIZE DEPRESS SOLENOID.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL. II SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/03/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8002 ABORT: 3/1R

ITEM: DIODE, ISOL, HYD MN PMP DEPRESS VALVE SOLENOID CKT  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC MAIN PUMP
- 2) DEPRESS VALVE SOLENOID CKT
- 3) AFT LCA
- 4) DIODE
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	3/1R
DEORBIT:	3/1R	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 55V76A122 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

LOSS OF REDUNDANCY TO POWER RETURN TO MAIN PUMP DEPRESS SOLENOID.  
SECOND FAILURE POTENTIAL LOSS OF ONE HYDRAULIC SYSTEM.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEM HANDBOOK, VOL.  
II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/03/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8003 ABORT: 3/1R

ITEM: DIODE, ISOL (3A), HYD MN PMP DEPRESS VLV SOLENOID  
CKT  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC MAIN PUMP
- 2) DEPRESS VALVE SOLENOID CKT
- 3) AFT LCA
- 4) DIODE
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	3/1R
DEORBIT:	3/1R	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 55V76A123 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:  
LOSS OF REDUNDANCY FOR POWER RETURN TO MAIN PUMP DEPRESS  
SOLENOID, SECOND FAILURE POTENTIAL LOSS OF ONE HYDRAULIC SYSTEM.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL.  
II SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/03/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8004 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE 4, HYD L.G. RETR/CIRC VLV SOL.  
CKT  
FAILURE MODE: INADVERTENT OUTPUT, SHORTS TO GROUND

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE SOL CKT
- 3) FWD LCA
- 4) HYDBRID DRIVER, TYPE 4
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 81V76A16 (VS70-580109E)  
PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION, MECHANICAL SHOCK

EFFECTS/RATIONALE:

NO EFFECT, FIRST FAILURE, CLOSED DRIVER MUST BE ENERGIZED TO  
CLOSE VALVE. SECOND FAILURE RPC FAILS ON ACTUATING SOLENOID  
VALVE.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL.  
II, SECT. 12.

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/10/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 2/1R  
MDAC ID: 8005 ABORT: 2/1R

ITEM: DIODE, HYD MN PUMP DEPRESS VLV SOL CKT.  
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC MAIN PUMP
- 2) DEPRESS VALVE SOLENOID CKT
- 3) AFT PCA
- 4) DIODE, SURGE SUPPRESSION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	2/1R
DEORBIT:	2/1R	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 55V76A135  
PART NUMBER:

CAUSES: MECHANICAL SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

DIODE OPEN WILL POSSIBLY CASE LOSS OF RPC AND/OR HYBRID DRIVER.  
LOST CAPABILITY TO ACTIVATE DEPRESS SOLENOID VALVE.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL.  
II, SECT. 12.



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8161 ABORT: 3/1R

ITEM: CONTROL FUSE (3A) HYD CIRC PUMP CNTRL  
FAILURE MODE: OPEN

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC CIRC PUMP
- 2) AFT AVIONICS BAY 4
- 3) AFT POWER CONTACTOR ASSEMBLY NO. 4
- 4) CONTROL FUSE (3A)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	3/1R
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 54V76A134 (VS70-580109)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

POWER TO CIRC PUMP FROM TWO REDUNDANT CIRCUITS. POSSIBLE LOSS OF ONE CIRC PUMP.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8162 ABORT: /NA

ITEM: POWER FUSE (150 AMP), H40 CIRC PUMP CNTL  
FAILURE MODE: OPEN

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC CIRC PUMP
- 2) AFT AVIONICS BAY 4
- 3) AFT POWER CONTACTOR ASSEMBLY NO. 4
- 4) POWER CONTACTOR (K3, K4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	3/3
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 54V76A134 (VS70-580109)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK

EFFECTS/RATIONALE:  
LOSS OF REDUNDANCY POWER TO ONE CIRC PUMP.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8461 ABORT: /NA

ITEM: PWR SW S25  
FAILURE MODE: FAILS OPEN, SHORTS TO GROUND

LEAD ANALYST: J. DUVAL SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC CIRC PUMP
- 2) PANEL A12
- 3) PWR SW S25
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 36V73A12 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, CONTAMINATION

EFFECTS/RATIONALE:

LOSS OF FUNCTION. LOSS OF POWER TO CIRC PUMP ACTIVATION  
CIRCUITS.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/04/86 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8462 ABORT: /NA

ITEM: PWR SW S25  
FAILURE MODE: INTERNAL SHORT ALL CONTACTS

LEAD ANALYST: J. DUVAL SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC CIRC PUMP
- 2) PANEL A12
- 3) PWR SW S25
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 36V73A12 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF ONE CIRC. PUMP BECAUSE OFF INDETERMINATE CIRCUIT  
BEHAVIOR (RELAY RACE).

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL  
II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/13/86 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8751 ABORT: /NA

ITEM: FUSE, (1A) LG RETRACT/CIRC VLV SOLENOID  
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) PANEL R4
- 4) LG RETRACT/CIRC VLV SOLENOID
- 5) FUSE (1A)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A4 (VS70-580190E)  
PART NUMBER:

CAUSES: MECHANICAL SHOCK, THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

PROVIDES CURRENT LIMITING/PROTECTION OF POWER TO N/C SOLENOID VALVE FOR LG RETRACT/CIRC HYDRAULIC OPERATIONS DURING GROUND TURNAROUND ONLY.

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8752 ABORT: /NA

ITEM: RESISTOR, (1.21K), LG RETRACT/CIRC VLV SOLENOID  
CKT  
FAILURE MODE: OPEN (ELECTRICAL) SHORTED

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) PANEL R4
- 4) LG RETRACT/CIRC VLV SOLENOID CKT
- 5) RESISTOR (1.21K)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A4 (VS70-580190E)  
PART NUMBER:

CAUSES: MECHANICAL SHOCK, THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

SHORT, NO EFFECT. OPEN, LOSS OF REDUNDANT POWER SOURCE TO ENERGIZE SOLENOID. RESISTOR PROVIDES CURRENT LIMITING OF POWER TO NORMALLY CLOSE SOLENOID VALVE FOR LANDING GEAR RETRACT/CIRC HYDRAULIC OPERATION DURING GROUND TURNAROUND ONLY.

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8753 ABORT: /NA

ITEM: RPC, LG RETRACT/CIRC VLV SOLENOID CKT  
FAILURE MODE: OPEN (ELECTRICAL) LOSS OF OUTPUT

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FPCA 1,2
- 4) LG RETRACT/CIRC VLV SOLENOID CKT
- 5) RPC
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 81V76A22 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

LOSS OF REDUNDANT POWER TO ENERGIZE SOLENOID. FAILURE EFFECTS  
APPLICABLE ONLY DURING GROUND TURNAROUND/CHECKOUT.

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8754 ABORT: /NA

ITEM: RPC, LG RETRACT/CIRC VLV SOLENOID CKT  
FAILURE MODE: INADVERTANT OPERATION

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FPCA 1,2
- 4) LG RETRACT VLV SOLENOID CKT
- 5) RPC
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 81V76A22 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8755 ABORT: /NA

ITEM: HYBRID DRIVER, TYPE 4, LG RETRACT/CIRC VLV  
SOLENOID CKT  
FAILURE MODE: OPEN (ELECTRICAL) LOSS OF OUTPUT

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE SOLENOID CKT
- 3) FLCA 1,2
- 4) HYBRID DRIVER, TYPE 4
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	/NA	RTLS:	/NA	
LIFTOFF:	/NA	TAL:	/NA	
ONORBIT:	/NA	AOA:	/NA	
DEORBIT:	/NA	ATO:	/NA	
LANDING/SAFING:	3/3			

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 81V76A16 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8756 ABORT: /NA

ITEM: HYBRID DRIVER, TYPE 1, LG RETRACT/CIRC VLV  
SOLENOID CKT  
FAILURE MODE: OPEN (ELECTRICAL), LOSS OF OUTPUT, SHORT TO GROUND

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT/CIRC VALVE SOLENOID CKT
- 3) FLCA 1,2
- 4) HYBRID DRIVER, TYPE 1
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 81V76A17 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8757 ABORT: /NA

ITEM: HYBRID DRIVER, TYPE 1, LG RETRACT/CIRC VLV  
SOLENOID CKT  
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FLCA 1,2
- 4) LG RETRACT/CIRC VLV SOLENOID
- 5) HYBRID DRIVER, TYPE 1
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 81V76A17 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8758 ABORT: /NA

ITEM: DIODE, SURGE SUPP, (3A), LG RETRACT/CIRC VLV  
SOLENOID CKT  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FPCA 2
- 4) LG RETRACT/CIRC VLV SOLENOID CKT
- 5) DIODE, SURGE SUPPRESSION, (3A)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 82V76A23 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL SHOCK

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8759 ABORT: /NA

ITEM: DIODE, BUS ISOLATION, (1A) (3A)  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FLCA/FPCA 1, 2
- 4) LG RETRACT/CIRC VLV SOLENOID VLV CKT
- 5) DIODE, BUS ISOLATION, (1A) (3A)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 82V76A23, (1A), 82V76A17, (3A) (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8761 ABORT: /NA

ITEM: DIODES, RPC PWR ISOLATION, (2A) (12A)  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FPCA 1,2
- 4) LG RETRACT/CIRC VLV SOLENOID VALVE CK
- 5) DIODE, RPC PWR ISOLATION (2A) (12A)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 82V76A23, A22 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8762 ABORT: /NA

ITEM: DIODE, GROUND ISOLATION, RETRACT/CIR VLV,  
(2A) (15A)  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FLCA 1,2
- 4) LG RETRACT/CIRC VLV SOLENOID VALVE CKT
- 5) DIODE, GROUND ISOLATION, (2A) (15A)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 82V76A23, A16, A17 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8763 ABORT: 3/1R

ITEM: DIODE, GROUND ISOLATION, (15A)  
FAILURE MODE: SHORT TO GROUND

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FLCA 1,2
- 4) LG RETRACT/CIRC VLV SOLENOID VALVE CKT
- 5) DIODE, GROUND ISOLATION, (15A)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 82V76A17,A16 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8764 ABORT: /NA

ITEM: RESISTOR, MONITOR ISOLATION, (1.8K) (2.2K) (5.1K)  
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE SOLENOID CKT
- 3) FPCA/FLCA 1,2
- 4) RESISTOR, MONITOR ISOLATION (1.8K) (2.2K) (5.1K)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 82V76A23,A16, A17 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/1R  
MDAC ID: 8765 ABORT: /NA

ITEM: RESISTOR, SHORT CKT PROTECTION  
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) FPCA-1
- 4) LG RETRACT/CIRC SOLENOID VALVE CKT
- 5) RESISTOR, SHORT CKT PROTECTION
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 81V76A22 (VS70-580109E)  
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, THERMAL SHOCK,  
VIBRATION

EFFECTS/RATIONALE:

REFERENCES: VS70-580109E, VOL. II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 8766 ABORT: /NA

ITEM: LG RETRACT/CIRC VLV SW  
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) MAIN HYDRAULIC SYSTEM 1
- 2) RETRACT CIRC VALVE
- 3) PANEL R4
- 4) LG RETRACT/CIRC VLV SW
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION: 32V73A4 (VS70-580109E)  
PART NUMBER:

CAUSES: VIBRATION, MECHANICAL SHOCK, STRUCTURAL FAILURE

EFFECTS/RATIONALE:

RETRACT/CIRC VALVE STAYS ENERGIZED WHEN CIRC PUMP IS ON.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL.  
II, SECT. 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 9091 ABORT: /

ITEM: MDM ISOLATION DIODE  
FAILURE MODE: SHORTED

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC SYSTEM 1
- 2) LANDING GEAR ISOLATION VALVE
- 3) AFT LCA
- 4) MDM ISOLATION DIODE
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION:  
PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION, MECHANICAL SHOCK

EFFECTS/RATIONALE:  
NO EFFECT IN FLIGHT.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 9101 ABORT: /NA

ITEM: VEHICLE ISOLATION DIODE  
FAILURE MODE: SHORTED

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC SYSTEM 1
- 2) LANDING GEAR ISOLATION VALVE
- 3) AFT LCA
- 4) VEHICLE ISOLATION DIODE
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION:  
PART NUMBER:

CAUSES: THERMAL STRESS, VIBRATION, MECHANICAL SHOCK

EFFECTS/RATIONALE:  
NO EFFECT IN FLIGHT.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 9141 ABORT: 3/3

ITEM: ISO VLV CTL CIRCUIT RESISTOR (1.21K)  
FAILURE MODE: SHORT

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC SYSTEM 1
- 2) LANDING GEAR ISOLATION VALVE
- 3) PANEL R4
- 4) ISO VLV CTL CIRCUIT RESISTOR (1.21K)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	3/3
LIFTOFF:	/NA		TAL:	3/3
ONORBIT:	/NA		AOA:	3/3
DEORBIT:	3/3		ATO:	3/3
LANDING/SAFING:	3/3			

REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION:  
PART NUMBER:

CAUSES: VIBRATION, CORROSION, THERMAL STRESS

EFFECTS/RATIONALE:  
LOSS OF OVERCURRENT PROTECTION. NO EFFECT ON FLIGHT.

REFERENCES: VS70-580109E, SPACE SHUTTLE SYSTEMS HANDBOOK, VOL II, SECT 12

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/13/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: HYD/WSB FLIGHT: 3/3  
MDAC ID: 9501 ABORT: 3/3

ITEM: HYDRAULIC PRESSURE METER  
FAILURE MODE: OPEN, SHORT, OUT OF TOLERANCE

LEAD ANALYST: W. DAVIDSON SUBSYS LEAD: W. DAVIDSON

BREAKDOWN HIERARCHY:

- 1) HYDRAULIC DISTRIBUTION, MONITORING, AND CONTROL
- 2) HYDRAULIC PRESSURE METER
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

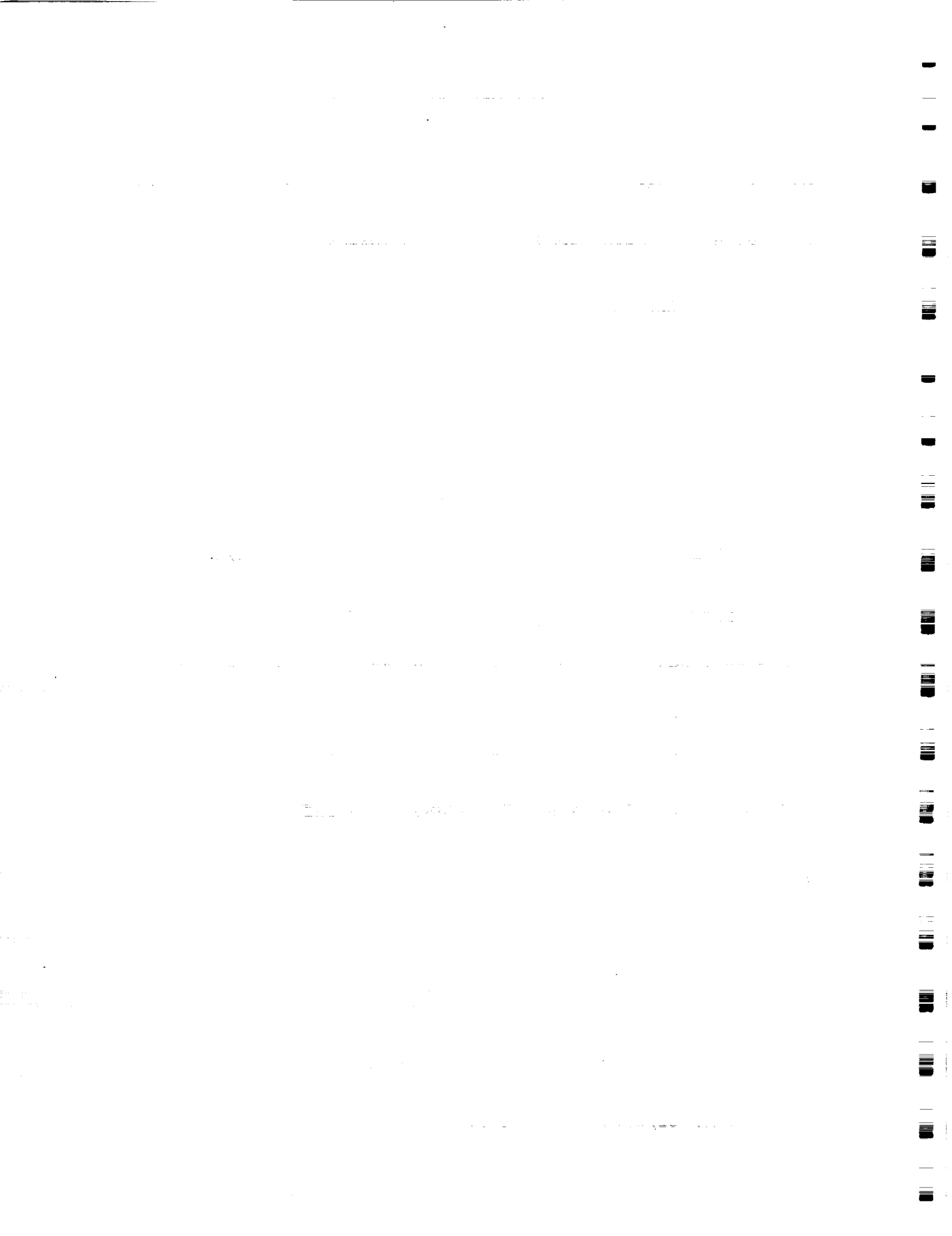
REDUNDANCY SCREENS: A [NA ] B [NA ] C [NA ]

LOCATION:  
PART NUMBER:

CAUSES: CORROSION, VIBRATION, PIECE PART FAILURE

EFFECTS/RATIONALE:  
LOSE DIRECT ONBOARD HYDRAULIC PRESSURE READING

REFERENCES:





## APPENDIX F

### NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS

This section provides a cross reference between the NASA FMEA and corresponding IOA analysis worksheet(s) included in Appendix E. The Appendix F identifies: NASA FMEA Number, IOA Assessment Number, NASA criticality and redundancy screen data, and IOA recommendations.

### APPENDIX F LEGEND

Code	Definition
1	IOA Recommends a Higher Criticality
2	IOA Recommends Additional Failure Mode
3	IOA Recommends A Lower Criticality
4	IOA Recommends Change to a Redundancy Screen
5	IOA Concurs With NASA Analysis
6	Delete IOA Failure Mode
7	Delete FMEA From CIL
8	Add FMEA To CIL

ORIGINAL PAGE IS  
OF POOR QUALITY

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE		
	HYDWSB-110	2/1R	P P P	3/1R	NA	2		X	
	HYDWSB-116	/		3/3	NA NA NA	2		X	
	HYDWSB-118	/		2/1R	P P P	2.8		X	
	HYDWSB-132	/		/					
	HYDWSB-143	/		2/1R	P P P	2		X	
	HYDWSB-160	/		3/3	NA NA NA	2		X	
	HYDWSB-161	/		/		6			
	HYDWSB-162	/		/		6			
	HYDWSB-163	/		/		6			
	HYDWSB-164	/		2/1R	P P P	2.8		X	
	HYDWSB-171	/		/		2		X	
	HYDWSB-196	/		/		6			
	HYDWSB-197	/		2/1R	P P P	2.8		X	
	HYDWSB-404	/		/		6			
	HYDWSB-406	3/3	NA NA NA	/					
	HYDWSB-407	/		3/3	NA NA NA	2		X	
	HYDWSB-408	/		/		6			
	HYDWSB-409	/		3/3	NA NA NA	2		X	
	HYDWSB-410	/		/		6			
	HYDWSB-411	/		/		6			
	HYDWSB-415	/		/		6			
	HYDWSB-431	/		3/1R	F P P	2.8		X	
	HYDWSB-433	/		/		6			
	HYDWSB-437	/		/		6			
	HYDWSB-441	/		/		6			
	HYDWSB-475	/		/		6			
	HYDWSB-483	/		/		6			
	HYDWSB-485	/		/		2		X	
	HYDWSB-487	/		2/1R	P F P	2.8		X	
	HYDWSB-602	/		/		6			
	HYDWSB-625	/		/		6			
	HYDWSB-628	/		3/1R	P P P	2		X	
	HYDWSB-645	/		3/3	NA NA NA	2		X	
	HYDWSB-647	/		/		6			
	HYDWSB-648	/		/		6			
	HYDWSB-649	/		/		6			
	HYDWSB-650	/		3/3	NA NA NA	2		X	
	HYDWSB-651	/		/		6			
	HYDWSB-652	/		/		6			
	HYDWSB-653	/		/		6			
	HYDWSB-654	/		/		6			
	HYDWSB-655	/		3/3	NA NA NA	2		X	
	HYDWSB-656	/		3/3	NA NA NA	2		X	
	HYDWSB-657	/		/		6			
	HYDWSB-658	/		3/3	NA NA NA	2		X	

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
	HYDWSB-659	/				3/3	NA	NA	NA	2	X
	HYDWSB-660	/				/				6	
	HYDWSB-661	/				3/3	NA	NA	NA	2	X
	HYDWSB-662	/				3/3	NA	NA	NA	2	X
	HYDWSB-663	/				/				6	
	HYDWSB-664	/				3/3	NA	NA	NA	2	X
	HYDWSB-665	/				/				6	
	HYDWSB-666	/				3/3	NA	NA	NA	2	X
	HYDWSB-667	/				/				6	
	HYDWSB-679	/				/				6	
	HYDWSB-680	/				/				6	
	HYDWSB-682	/				/				6	
	HYDWSB-690	/				/				6	
	HYDWSB-692	/				/				6	
	HYDWSB-700	/				/				6	
	HYDWSB-701	/				/				6	
	HYDWSB-702	/				/				6	
	HYDWSB-703	/				/				6	
	HYDWSB-714	/				3/1R	P	P	P	2	X
	HYDWSB-723	/				/				6	
	HYDWSB-724	/				2/1R	P	P	P	2.8	X
	HYDWSB-726	/				/				6	
	HYDWSB-727	/				/				6	
	HYDWSB-812	/				/				6	
	HYDWSB-813	/				/				6	
	HYDWSB-824	/				/				6	
	HYDWSB-858	/				3/3	NA	NA	NA	2	X
02-6-A02-1	HYDWSB-452	1/1	NA	NA	NA	/				5	
02-6-A02-12	HYDWSB-451A	3/1R	P	P	P	/					
02-6-A02-2	HYDWSB-451	3/1R	P	P	P	2/				1	X
02-6-A06-1	HYDWSB-495	2/1R	P	P	P	/					
02-6-A06-2	HYDWSB-496	2/1R	P	P	P	/					
02-6-A06-3	HYDWSB-497	2/1R	P	P	P	/					
02-6-A07-1	HYDWSB-455	3/1R	F	NA	P	3/3	NA	NA	NA	3.7	X
02-6-A07-2	HYDWSB-456	1/1	NA	NA	NA	/				5	
02-6-A11-1	HYDWSB-457A	2/1R	P	P	P	/					
02-6-A15-1	HYDWSB-458A	2/1R	P	P	P	/					
	HYDWSB-459A	2/1R	P	P	P	/					
02-6-A16-1	HYDWSB-413	3/3	P	P	P	/	NA	NA	NA		
	HYDWSB-416	3/3	P	P	P	/	NA	NA	NA		
02-6-A16-2	HYDWSB-424	3/3	NA	NA	NA	/					
	HYDWSB-425	3/3	NA	NA	NA	/					
02-6-A16-3	HYDWSB-417	2/1R	P	P	P	/					
02-6-A16-4	HYDWSB-421	3/3				/	NA	NA	NA		
	HYDWSB-422	3/3				/	NA	NA	NA		
	HYDWSB-423	3/3				/	NA	NA	NA		
02-6-C05-1	HYDWSB-643	2/1R	P	P	P	/					
	HYDWSB-644	2/1R	P	P	P	/					
02-6-C05-2	HYDWSB-668	3/3	NA	NA	NA	/					
02-6-C05-3	HYDWSB-646	2/1R	P	F	P	/				5	

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
02-6-C05-4	HYDWSB-646A	2/1R	P	F	P	/				5	
02-6-C06-2	HYDWSB-5000X	1/1	NA	NA	NA	/					
	HYDWSB-5001X	3/1R	F	NA	P	/				3	X
02-6-C07-1	HYDWSB-481	2/1R	P	P	P	/					
	HYDWSB-482	2/1R	P	P	P	/					
02-6-C07-2	HYDWSB-479	2/1R	P	P	P	/					
	HYDWSB-480	2/1R	P	P	P	/					
02-6-C08-1	HYDWSB-450	3/1R	P	F	P	/				5	
02-6-C08-2	HYDWSB-450A	3/1R	F	F	P	/		NA		5	
02-6-C09-1	HYDWSB-669	2/1R	P	P	P	/					
	HYDWSB-670	2/1R	P	P	P	/					
02-6-C10-1	HYDWSB-672	3/1R	F	NA	P	3/3	NA	NA	NA	3.7	X
02-6-C10-2	HYDWSB-671	2/1R	P	F	P	3/1R	P	F	P	3	X
02-6-E02-1	HYDWSB-448	3/1R	P	F	P	/				5	
	HYDWSB-449	3/1R	P	F	P	/				5	
02-6-E02-2	HYDWSB-448A	3/1R	F	F	P	/		NA		5	
	HYDWSB-449A	3/1R	F	F	P	/		NA		5	
02-6-E03-1	HYDWSB-626	2/1R	P	P	P	/					
	HYDWSB-627	2/1R	P	P	P	/					
	HYDWSB-630	2/1R	P	P	P	/					
	HYDWSB-631	2/1R	P	P	P	/					
02-6-E03-4	HYDWSB-634	3/3	NA	NA	NA	/					
	HYDWSB-635	3/3	NA	NA	NA	/					
	HYDWSB-636	3/3	NA	NA	NA	/					
02-6-E03-5	HYDWSB-624	2/1R	P	P	P	/					
02-6-E04-1	HYDWSB-615	3/3	NA	NA	NA	/					
	HYDWSB-684	3/3	NA	NA	NA	/					
	HYDWSB-689	3/3	NA	NA	NA	/					
	HYDWSB-694	3/3	NA	NA	NA	/					
02-6-E05	HYDWSB-695	3/3	NA	NA	NA	/					
02-6-E05-1	HYDWSB-685	3/3	NA	NA	NA	/					
	HYDWSB-687	3/3	NA	NA	NA	/				5	
	HYDWSB-697	3/3	NA	NA	NA	/				5	
02-6-E05-2	HYDWSB-686	3/3	NA	NA	NA	/					
	HYDWSB-688	3/3	NA	NA	NA	/				5	
	HYDWSB-696	3/3	NA	NA	NA	/					
	HYDWSB-698	3/3	NA	NA	NA	/				5	
02-6-E06-1	HYDWSB-605	2/1R	P	P	P	/					
	HYDWSB-606	2/1R	P	P	P	/					
02-6-E06-2	HYDWSB-604	2/1R	P	P	P	/					
02-6-E06-3	HYDWSB-608	2/1R	P	P	P	/					
	HYDWSB-611	2/1R	P	P	P	/					
02-6-E06-5	HYDWSB-601	1/1	NA	NA	NA	/				5	
	HYDWSB-610	2/1R	P	P	P	/					
02-6-E07-1	HYDWSB-622	3/3	NA	NA	NA	/					
02-6-E07-2	HYDWSB-621	3/3	NA	NA	NA	/				5	
02-6-E08-1	HYDWSB-720	3/3	NA	NA	NA	/					
02-6-E08-2	HYDWSB-709	2/1R	P	P	P	/					
02-6-E08-4	HYDWSB-722	2/1R	P	F	P	/				5	
02-6-E08-6	HYDWSB-715	2/1R	P	P	P	/					

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS		
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C
(SEE LEGEND CODE)									
02-6-E09-2	HYDWSB-619	2/1R	P	F	P	/			5
02-6-E10-2	HYDWSB-704	2/1R	P	P	P	/			
02-6-E11	HYDWSB-705	3/3	NA	NA	NA	/			
	HYDWSB-706	3/3	NA	NA	NA	/			
	HYDWSB-707	3/3	NA	NA	NA	/			
02-6-E11-A01	HYDWSB-710	3/3	NA	NA	NA	/			
	HYDWSB-712	3/3	NA	NA	NA	/			
	HYDWSB-716	3/3	NA	NA	NA	/			
	HYDWSB-718	3/3	NA	NA	NA	/			
02-6-E11-A02	HYDWSB-711	3/3	NA	NA	NA	/			
	HYDWSB-717	3/3	NA	NA	NA	/			
02-6-E12-1	HYDWSB-478	3/3	NA	NA	NA	/			5
02-6-E13-1	HYDWSB-678	3/3	NA	NA	NA	/			
	HYDWSB-681	3/3	NA	NA	NA	/			
	HYDWSB-683	3/3	NA	NA	NA	/			
	HYDWSB-691	3/3	NA	NA	NA	/			
	HYDWSB-693	3/3	NA	NA	NA	/			
02-6-E23-1	HYDWSB-476	2/1R	P	P	P	/			
02-6-E23-2	HYDWSB-477	2/1R	P	P	P	/			
02-6-E24-1	HYDWSB-401	2/1R	P	P	P	/			5
	HYDWSB-412	2/1R	P	P	P	/			5
02-6-E24-4	HYDWSB-405	3/3	NA	NA	NA	/			
02-6-E24-5	HYDWSB-403	2/1R	P	P	P	/			
02-6-E26-1	HYDWSB-444	3/3	NA	NA	NA	/			
	HYDWSB-445	3/3	NA	NA	NA	/			
02-6-E27	HYDWSB-439	/				3/1R	P	F	P
02-6-E27-1	HYDWSB-435	3/1R	P	P	P	/			
	HYDWSB-443	3/1R	P	P	P	/			
02-6-E27-3	HYDWSB-436	3/1R	P	P	P	/			
	HYDWSB-440	3/1R	P	P	P	/			
	HYDWSB-442	3/1R	P	P	P	/			
02-6-E27-4	HYDWSB-438	3/1R	P	P	P	/			
02-6-E28-1	HYDWSB-460A	2/1R	P	P	P	/			
02-6-E29-1	HYDWSB-426	3/1R	P	P	P	/			
	HYDWSB-427	3/1R	P	P	P	/			
	HYDWSB-428	3/1R	P	P	P	/			
	HYDWSB-429	3/1R	P	P	P	/			
	HYDWSB-430	/				/			2
02-6-E30-2	HYDWSB-612	2/1R	P	P	P	/			
	HYDWSB-613	2/1R	P	P	P	/			
	HYDWSB-614	2/1R	P	P	P	/			
02-6-E39-1	HYDWSB-728	3/3	NA	NA	NA	/			
02-6-E39-2	HYDWSB-729	3/3	NA	NA	NA	/			
	HYDWSB-731	3/3	NA	NA	NA	/			
02-6-602-1	HYDWSB-491	2/1R	P	P	P	/			
02-6-602-2	HYDWSB-492	1/1	NA	NA	NA	/			
02-6-602-3	HYDWSB-493	3/3	NA	NA	NA	/			
02-6-604-1	HYDWSB-469	3/1R	P	F	P	2/1R			1
02-6-604-2	HYDWSB-470	3/3	NA	NA	NA	/			
02-6-605-1	HYDWSB-472	3/1R	P	F	P	2/			

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *					ISSUE
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)
02-6-605-2	HYDWSB-473	3/3	NA	NA	NA	/				
02-6-610-1	HYDWSB-462	2/1R	P	P	P	/	NA		5	
02-6-611-1	HYDWSB-463	2/1R	P	P	P	/	NA		5	
02-6-613-2	HYDWSB-486	3/1R	P	F	P	2/1R			1	X
02-6-613-4	HYDWSB-488	3/3	NA	NA	NA	/				
02-6-614-1	HYDWSB-490	3/1R	P	F	P	/				
02-6-H04-1	HYDWSB-461	2/1R	P	P	P	/			5	
02-6-SYSTEM-2	HYDWSB-168	2/1R	P	P	P	/				
	HYDWSB-402	2/1R	P	P	P	/				
	HYDWSB-414	2/1R	P	P	P	/				
	HYDWSB-432	2/1R	P	P	P	/				
	HYDWSB-434	2/1R	P	P	P	/				
	HYDWSB-453	2/1R	P	P	P	/				
	HYDWSB-454	2/1R	P	P	P	/				
	HYDWSB-457	2/1R	P	P	P	/				
	HYDWSB-458	2/1R	P	P	P	/				
	HYDWSB-459	2/1R	P	P	P	/				
	HYDWSB-460	2/1R	P	P	P	/				
	HYDWSB-471	2/1R	P	P	P	/	F		2	X
	HYDWSB-474	2/1R	P	P	P	/			5	
	HYDWSB-484	2/1R	P	P	P	/				
	HYDWSB-489	2/1R	P	P	P	/	F		2	X
	HYDWSB-494	2/1R	P	P	P	/	F		2	X
	HYDWSB-498	2/1R	P	P	P	/				
	HYDWSB-600	2/1R	P	P	P	/				
	HYDWSB-603	2/1R	P	P	P	/				
	HYDWSB-607	2/1R	P	P	P	/				
	HYDWSB-609	2/1R	P	P	P	/				
	HYDWSB-620	2/1R	P	P	P	/				
	HYDWSB-623	2/1R	P	P	P	/				
	HYDWSB-629	2/1R	P	P	P	/				
	HYDWSB-632	2/1R	P	P	P	/				
	HYDWSB-633	2/1R	P	P	P	/				
	HYDWSB-673	2/1R	P	P	P	/				
	HYDWSB-677	2/1R	P	P	P	/				
	HYDWSB-699	2/1R	P	P	P	/				
	HYDWSB-708	2/1R	P	P	P	/				
	HYDWSB-713	2/1R	P	P	P	/				
	HYDWSB-719	2/1R	P	P	P	/				
	HYDWSB-721	2/1R	P	P	P	/				
	HYDWSB-725	2/1R	P	P	P	/				
	HYDWSB-730	2/1R	P	P	P	/				
02-6-SYSTEM-3	HYDWSB-464	2/1R	P	P	P	/				
	HYDWSB-465	2/1R	P	P	P	/	F		2	X
	HYDWSB-466	2/1R	P	P	P	3/			2	X
	HYDWSB-467	2/1R	P	P	P	/				
HYDWSB-468	2/1R	P	P	P	/					
02-6-SYSTEM-4	HYDWSB-446	3/3	NA	NA	NA	/				
02-6-SYSTEM-5	HYDWSB-447	3/3	NA	NA	NA	/				
02-6-SYSTEM-7	HYDWSB-637	3/3	NA	NA	NA	/				

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA	IOA	CRIT	SCREENS	CRIT	SCREENS	OTHER		ISSUE	
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A B C	HW/F	A B C	(SEE LEGEND CODE)			
02-6-SYSTEM-7	HYDWSB-638	3/3	NA NA NA	/					
	HYDWSB-639	3/3	NA NA NA	/					
05-66-00100-1B	HYDWSB-8005X	2/1R	F F P	/		8		X	
05-66-200100-10A	HYDWSB-862	3/3		/					
	HYDWSB-863	3/3		/					
05-66-200100-10B	HYDWSB-856	3/3		/					
	HYDWSB-857	3/3		/					
	HYDWSB-859	3/3		/					
	HYDWSB-864	3/3		/					
	HYDWSB-865	3/3		/					
05-66-200100-1C	HYDWSB-851	3/1R	P P P	/		5			
05-66-200100-1E	HYDWSB-850	3/1R	P P P	/		5.7		X	
05-66-200100-1G	HYDWSB-867	3/3		/					
	HYDWSB-870	3/3		/					
05-66-200100-1H	HYDWSB-868	3/1R	P P P	/		5			
	HYDWSB-869	3/1R	P P P	/		5			
05-66-200100-1I	HYDWSB-866	3/1R	P P P	/		5			
05-66-200100-1JA	HYDWSB-852	3/3		/					
	HYDWSB-853	3/3		/					
05-66-200100-1JB	HYDWSB-854	3/1R	P P P	/					
05-66-200100-1JC	HYDWSB-855	3/3		/					
05-66-200100-1JE	HYDWSB-873	3/3	NA NA NA	/					
05-66-200100-1JF	HYDWSB-872	3/1R	P F P	/					
05-66-200100-1JFA	HYDWSB-872A	3/1R	P F P	/					
05-66-200100-1JG	HYDWSB-871	3/3		/		5			
05-66-200100-1JH	HYDWSB-854A	3/1R	P P P	/					
05-66-200100-1JI	HYDWSB-855A	3/3		/					
05-66-200300-1A	HYDWSB-876	3/1R	P P P	/3		2,3		X	
	HYDWSB-877	3/1R	P P P	/		2,5		X	
05-66-200300-1B	HYDWSB-875	3/3	NA NA NA	/					
05-66-200300-1C	HYDWSB-8751X	3/3	NA NA NA	/					
05-66-200300-1D	HYDWSB-8752X	3/3	NA NA NA	/					
05-66-200300-1E	HYDWSB-8753X	3/3	NA NA NA	/					
05-66-200300-1F	HYDWSB-8754X	3/1R	P P P	/					
05-66-200300-1G	HYDWSB-8755X	3/3	NA NA NA	/					
05-66-200300-1I	HYDWSB-8756X	3/3	NA NA NA	/					
05-66-200300-1J	HYDWSB-8757X	3/1R	P P P	/					
05-66-200300-1KA	HYDWSB-8758X	3/3		/					
05-66-200300-1KB	HYDWSB-8759X	3/3		/					
05-66-200300-1KC	HYDWSB-8761X	3/3		/		2, 3		X	
05-66-200300-1KD	HYDWSB-8762X	3/3		/		2, 3		X	
05-66-200300-1KE	HYDWSB-8763X	3/1R	P F P	/					
05-66-200300-1KF	HYDWSB-8764X	3/3		/		2, 3		X	
05-66-2003000-1KG	HYDWSB-8765X	3/3	P NA P	/	F				
05-66-2003000-1KH	HYDWSB-8766X	3/3		/		5			
05-66-200400-10	HYDWSB-825	3/3	NA NA NA	/					
05-66-200400-1A	HYDWSB-846	3/1R	P P P	/3	NA NA NA	3		X	
05-66-200400-1B	HYDWSB-8461X	3/1R	P P P	/					
05-66-200400-1C	HYDWSB-8462X	3/1R	P P P	/					
05-66-200400-1D	HYDWSB-842	3/1R	P P P	/	NA				

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
05-66-200400-1E	HYDWSB-843	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1F	HYDWSB-841	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1G	HYDWSB-845	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1H	HYDWSB-840	3/1R	P	P	P	/3	NA	NA	NA	3	X
	HYDWSB-844	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1I-1	HYDWSB-838	3/3	NA	NA	NA	/					
05-66-200400-1I1	HYDWSB-834	3/3	NA	NA	NA	/					
05-66-200400-1I2	HYDWSB-835	3/1R	P	P	P	/3	NA	NA	NA	3	X
	HYDWSB-839	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1J	HYDWSB-836	3/3	NA	NA	NA	/					
05-66-200400-1JA	HYDWSB-837	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1K	HYDWSB-826	3/3	NA	NA	NA	/					
	HYDWSB-827	3/3	NA	NA	NA	/					
05-66-200400-1L1	HYDWSB-819	3/1R	P	P	P	/3	NA	NA	NA	3	X
	HYDWSB-820	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1M1	HYDWSB-823	3/3	P	P	P	/	NA	NA	NA		
05-66-200400-1M2	HYDWSB-822	3/1R	P	P	P	3/3	NA	NA	NA	3	X
05-66-200400-1NA	HYDWSB-8161X	3/1R	P	P	P	/					
05-66-200400-1NB	HYDWSB-8162X	3/1R	P	P	P	3/3	NA	NA	NA	3	X
05-66-200400-1NC	HYDWSB-816	3/1R	P	P	P	/3	NA	NA	NA	3	X
05-66-200400-1P	HYDWSB-830	3/3	NA	NA	NA	/					
	HYDWSB-831	3/3	NA	NA	NA	/					
05-66-200400-1Q	HYDWSB-828	3/3				/	NA	NA	NA		
	HYDWSB-829	3/3				/	NA	NA	NA		
	HYDWSB-832	3/3				/	NA	NA	NA		
	HYDWSB-833	3/3				/					
05-66-200700-1	HYDWSB-847	3/3	NA	NA	NA	/					
05-66-201000-1	HYDWSB-814	2/1R	P	F	P	/				5	
05-66-201000-2	HYDWSB-815	3/3	NA	NA	NA	/					
05-66-201100-1	HYDWSB-805	3/3	NA	NA	NA	/1R	P	P	P	1	X
	HYDWSB-806	3/3	NA	NA	NA	/					
	HYDWSB-807	3/3	NA	NA	NA	/				5	
	HYDWSB-808	3/3	NA	NA	NA	/					
	HYDWSB-809	3/3	NA	NA	NA	/1R	P	P	P	1	X
	HYDWSB-810	3/3	NA	NA	NA	/					
	HYDWSB-811	3/3	NA	NA	NA	/				5	
05-66-201200-1	HYDWSB-800	3/3	NA	NA	NA	/1R	P	P	P	1	X
	HYDWSB-801	3/3	NA	NA	NA	/					
	HYDWSB-802	3/3	NA	NA	NA	/1R	P	P	P	1	X
	HYDWSB-803	3/3	NA	NA	NA	/1R	P	P	P	1	X
	HYDWSB-804	3/3	NA	NA	NA	/					
05-66-2053-1	HYDWSB-9501X	3/3	NA	NA	NA	/					
05-66-2054-1	HYDWSB-914	3/1R	P	NA	P	/				5	
05-66-2054-1A	HYDWSB-9141X	3/3	NA	NA	NA	/					
05-66-2055-1	HYDWSB-913	3/1R	P	NA	P	/				5	
05-66-2055-2	HYDWSB-912	2/1R	P	P	P	/		NA			
05-66-2055-3	HYDWSB-911	2/1R	P	P	P	/					
05-66-2056-1	HYDWSB-901	2/1R	P	P	P	/					
05-66-2056-3	HYDWSB-902	2/1R	P	P	P	/					
05-66-2057-1	HYDWSB-910	2/1R	P	P	P	/					



ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *							ISSUE
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER		
FMEA NUMBER	ASSESSMENT NUMBER		HW/F	A	B		C	HW/F	A	B	C	
05-66-2057-1A	HYDWSB-9101X	3/3	NA	NA	NA	/						
05-66-2058-1	HYDWSB-909	3/1R	P	P	P	/					5	
05-66-2058-1A	HYDWSB-9091X	3/3	NA	NA	NA	/						
05-66-2059-1	HYDWSB-908	3/3	NA	NA	NA	/						
05-66-2060-1	HYDWSB-907	3/3	NA	NA	NA	/						
05-66-2060-1A	HYDWSB-907A	3/3	NA	NA	NA	/						
05-66-2061-1	HYDWSB-906	3/3	NA	NA	NA	/						
05-66-2061-1A	HYDWSB-906A	3/3	NA	NA	NA	/						
05-66-2062-1	HYDWSB-905	3/3	NA	NA	NA	/						
05-66-2063-1	HYDWSB-903	3/3	NA	NA	NA	/						
	HYDWSB-904	3/3	NA	NA	NA	/						
05-66-2064-1	HYDWSB-900	3/3	NA	NA	NA	/						
05-66-2064-2	HYDWSB-899	2/1R	P	P	P	/					5	
05-66-2065-1	HYDWSB-898	3/3	NA	NA	NA	/						
05-66-2065-1A	HYDWSB-897	3/3	NA	NA	NA	/						
05-66-2066-1	HYDWSB-896	3/3	NA	NA	NA	/					5	
05-66-2066-1A	HYDWSB-895	3/3	NA	NA	NA	/						
05-66-2067-1	HYDWSB-894	3/3	NA	NA	NA	/					5	
05-66-2067-1A	HYDWSB-893	3/3	NA	NA	NA	/						
05-66-2068-1	HYDWSB-892	3/3	NA	NA	NA	/					5	
05-66-2068-2	HYDWSB-891A	2/1R	P	P	P	/					5	
05-66-2068-3	HYDWSB-891	2/1R	P	P	P	/					5	
05-66-2069-1	HYDWSB-890	3/3	NA	NA	NA	/					5	
05-66-2069-1A	HYDWSB-890A	3/3	NA	NA	NA	/					5	
05-66-2070-1	HYDWSB-889	3/3	NA	NA	NA	/						
05-66-2070-2	HYDWSB-888	3/3	NA	NA	NA	/					5	
05-66-2071-1	HYDWSB-887	3/3	NA	NA	NA	/					5	
05-66-2071-2	HYDWSB-886	3/1R	P	F	P	/					5	
05-66-2072-1	HYDWSB-885	3/3	NA	NA	NA	/					5	
05-66-2072-2	HYDWSB-884	3/1R	P	F	P	/					5	
05-66-2073-1	HYDWSB-883	3/3	NA	NA	NA	/					5	
05-66-2073-1A	HYDWSB-882	3/3				/						
05-66-2074-1	HYDWSB-881	3/3	NA	NA	NA	/						
05-66-2075-1	HYDWSB-880	3/3	NA	NA	NA	/						
05-66-2076-1	HYDWSB-879	3/3	NA	NA	NA	/						
05-66-2077-1	HYDWSB-878	3/3	NA	NA	NA	/						
05-66-2078-1	HYDWSB-8001X	3/1R	F	F	P	/						
05-66-2080-1	HYDWSB-849	3/1R	P	F	P	/						
05-66-2080-2	HYDWSB-848	3/1R	P	F	P	/					5	
05-66-2085-1	HYDWSB-874	3/1R	P	F	P	/						
05-66-2086-1	HYDWSB-8002X	3/1R	P	F	P	/						
05-66-2087-1	HYDWSB-8003X	3/1R	P	F	P	/						
05-66-2088-1	HYDWSB-861	2/1R	P	P	P	/						
05-66-2088-2	HYDWSB-860	2/1R	P	P	P	/						
05-66-2095-2	HYDWSB-8004X	3/1R	P	F	P	/						
05-66-2110-2	HYDWSB-818	3/1R	P	F	P	/3	NA	NA	NA		3,7	X
	HYDWSB-821	3/1R	P	F	P	/3	NA	NA	NA		3,7	X
05-66-2114-2	HYDWSB-817	3/1R	F	F	P	/3	NA	NA	NA		3,7	X
05-66-2179-1	HYDWSB-188	3/1R	P	P	P	/		NA				
05-6W-2021-1	HYDWSB-175	3/1R	P	P	P	/		NA				

ORIGINAL PAGE IS  
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *					ISSUE
NASA	IDA	CRIT	SCREENS			CRIT	SCREENS			OTHER
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)
05-6W-2021-1A	HYDWSB-1751X	3/3				/				
05-6W-2051-2	HYDWSB-1771X	3/1R	P	NA	P	/	NA		7	X
05-6W-2054-3	HYDWSB-1791X	3/3	NA	NA	NA	/				
05-6W-2055-1	HYDWSB-184	3/1R	P	P	P	/				
	HYDWSB-185	3/1R	P	P	P	/				
05-6W-2086-1A	HYDWSB-183	3/1R	P	P	P	/	NA			
05-6W-2086-1B	HYDWSB-1832X	3/3				/				
05-6W-2086-1C	HYDWSB-183A	3/1R	P	P	P	/				
05-6W-2086-1D	HYDWSB-1834X	3/3				/				
05-6W-2088-1	HYDWSB-181	3/3	NA	NA	NA	/				
05-6W-2089-1	HYDWSB-182	3/3	NA	NA	NA	/				
05-6W-2129-1	HYDWSB-176	3/3	NA	NA	NA	/				
05-6W-2179-2	HYDWSB-189	3/1R	P	F	P	/			5	
05-6W-2208-1A	HYDWSB-186	3/1R	P	P	P	/	NA			
05-6W-2208-1B	HYDWSB-1862X	3/1R	P	P	P	/				
05-6W-2208-1C	HYDWSB-186A	3/1R	P	P	P	/	NA			
05-6W-2208-1D	HYDWSB-187	3/3	NA	NA	NA	/	NA			
05-6W-2208-1E	HYDWSB-1865X	3/3				/	NA	NA	NA	
05-6W-2259-1	HYDWSB-190	3/1R	P	P	P	/	NA			
05-6W-2259-2	HYDWSB-191	3/3	NA	NA	NA	/				
05-6W-2259A-1	HYDWSB-1901X	3/3	P		P	/	NA	NA	NA	
05-6W-2259A-2	HYDWSB-191A	3/3	NA	NA	NA	/				
05-6WA-2051-1	HYDWSB-177	2/1R	P	P	P	/			5	
	HYDWSB-178	2/1R	P	P	P	/	NA		5	
05-6WA-2054-1	HYDWSB-179	2/1R	P	P	P	/				
	HYDWSB-180	2/1R	P	P	P	/				
05-6WA-2055-2	HYDWSB-1841X	2/1R	P	P	P	/				
05-6WA-2129-2	HYDWSB-1761X	2/1R	P	P	P	/			5	
06-3-0607-5	HYDWSB-147	2/1R	P	F	P	/			5	
06-3-0610-2	HYDWSB-165	3/3	NA	NA	NA	/				
06-3-0611-1	HYDWSB-114	3/1R	P	P	P	/	NA			
	HYDWSB-115	3/1R	P	P	P	/			5	
	HYDWSB-192	3/1R	P	P	P	/	NA			
	HYDWSB-193	3/1R	P	P	P	/	NA			
06-3-0612-1	HYDWSB-194	3/1R	P	P	P	/	NA			
	HYDWSB-195	3/1R	P	P	P	/	NA			
06-3-0613-1	HYDWSB-135	3/3	NA	NA	NA	/				
06-3-0614-1	HYDWSB-153	3/3	NA	NA	NA	/				
06-3-0615-1	HYDWSB-151	3/3	NA	NA	NA	/				
06-3-0616-1	HYDWSB-125	3/3	NA	NA	NA	/				
06-3-0617-1	HYDWSB-124	3/3	NA	NA	NA	/				
06-3-0617-3	HYDWSB-123	3/3	F	F	P	/	NA	NA	NA	5,4
06-3-0617A-3	HYDWSB-123A	3/3	F	F	P	/	NA	NA	NA	5,4
06-3-0620-1	HYDWSB-137	3/1R	P	P	P	/	NA			
	HYDWSB-138	3/1R	P	P	P	/	NA			
06-3-0621-1	HYDWSB-114A	3/1R	P	P	P	/	NA			
06-3-0622-1	HYDWSB-122	3/1R	P	P	P	/	NA			
06-3-0624-1	HYDWSB-119	3/1R	P	P	P	/	NA			
	HYDWSB-121	3/1R	P	P	P	/	NA		5	
06-3-0624-2	HYDWSB-120	3/3	NA	NA	NA	/				

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *					ISSUE
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)
06-3-0624-2	HYDWSB-121A	3/3	NA	NA	NA	/		NA	5	
06-3-0625-1	HYDWSB-155	3/3	NA	NA	NA	/				
	HYDWSB-156	3/3	NA	NA	NA	/				
06-3-0626-1	HYDWSB-139	3/3	NA	NA	NA	/				
	HYDWSB-140	3/3	NA	NA	NA	/				
	HYDWSB-141	3/3	NA	NA	NA	/				
06-3-0627-1	HYDWSB-111	3/1R	P	P	P	/		NA		
	HYDWSB-112	3/1R	P	P	P	/		NA		
06-3-0627-2	HYDWSB-113	3/1R	P	P	P	/		NA		
06-3-0628-1	HYDWSB-174	3/1R	P	P	P	/		NA		
06-3-0628-2	HYDWSB-172	3/1R	F	P	P	/		NA		
	HYDWSB-173	3/1R	F	P	P	/		NA		
06-3-0629-1	HYDWSB-130	3/1R	P	P	P	/		NA		
06-3-0629-2	HYDWSB-131	3/1R	F	P	P	/	P	NA	4	X
06-3-0631-1	HYDWSB-157	3/3	NA	NA	NA	/				
	HYDWSB-158	3/3	NA	NA	NA	/				
	HYDWSB-159	3/3	NA	NA	NA	/				
06-3-0632-1	HYDWSB-127	3/1R	P	P	P	/		NA		
	HYDWSB-129	3/1R	P	P	P	/		NA		
06-3-0632-2	HYDWSB-128	3/3	F	NA	P	/	NA	NA	4	X
	HYDWSB-129A	3/3	NA	NA	NA	/			5	
06-3A-0602-1	HYDWSB-101	2/1R	P	P	P	/				
06-3A-0602-3	HYDWSB-105	2/1R	P	P	P	/				
06-3A-0602-4	HYDWSB-105A	2/1R	P	P	P	/				
06-3A-0603-1	HYDWSB-107	2/1R	P	P	P	/				
06-3A-0603-2	HYDWSB-106	2/1R	P	P	P	/				
06-3A-0603-4	HYDWSB-104	2/1R	P	P	F	/			5	
06-3A-0603-5	HYDWSB-106A	2/1R	P	P	P	/				
06-3A-0603-6	HYDWSB-104A	2/1R	F	F	P	/			5	
06-3A-0604-1	HYDWSB-117	2/1R	P	P	P	3/1R		NA	3.7	X
06-3A-0605-1	HYDWSB-109	2/1R	P	P	P	/				
06-3A-0605-2	HYDWSB-108	2/1R	P	P	P	/				
06-3A-0605-3	HYDWSB-109A	2/1R	P	P	P	/				
06-3A-0606-1	HYDWSB-148	2/1R	P	P	P	/				
06-3A-0606-2	HYDWSB-149	3/1R	P	F	P	2/2R	P	F	P	3
06-3A-0606-4	HYDWSB-150	2/1R	P	P	P	/				
06-3A-0607-1	HYDWSB-145	2/1R	P	P	P	/				
06-3A-0607-2	HYDWSB-1441X	2/1R	P	P	P	/				
06-3A-0607-3	HYDWSB-146	2/1R	P	P	P	/				
06-3A-0607-4	HYDWSB-144	2/1R	P	P	P	/				
06-3A-0608-1	HYDWSB-134	2/1R	P	P	P	/				
06-3A-0608-2	HYDWSB-134A	2/1R	P	P	P	/				
06-3A-0608-3	HYDWSB-133	2/1R	P	P	P	/				
06-3A-0609-1	HYDWSB-142	1/1	NA	NA	NA	/				
06-3A-0610-1	HYDWSB-167	2/1R	P	P	P	/				
06-3A-0610-3	HYDWSB-170	1/1	NA	NA	NA	/			5	
06-3A-0610-4	HYDWSB-169	2/1R	F	P	P	/				
06-3A-0610-5	HYDWSB-166	2/1R	P	P	P	/				
06-3A-0613-2	HYDWSB-136	3/1R	P	F	P	/			5	
06-3A-0613-3	HYDWSB-136A	3/1R	F	F	P	/			5	

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
06-3A-0614-2	HYDWSB-154A	3/1R	P	F	P	/				5	
06-3A-0614-3	HYDWSB-154	3/1R	F	F	P	/				5	
06-3A-0615-2	HYDWSB-152A	3/1R	P	F	P	/				5	
06-3A-0615-3	HYDWSB-152	3/1R	F	F	P	/				5	
06-3A-0616-2	HYDWSB-126A	3/1R	P	F	P	/				5	
06-3A-0616-3	HYDWSB-126	3/1R	F	F	P	/				5	
06-3A-0618-1	HYDWSB-102	2/1R	P	P	P	/					
	HYDWSB-103	2/1R	P	P	P	/					
06-3A-0619-1	HYDWSB-103A	2/1R	P	F	P	/					
06-3A-0633-1	HYDWSB-1171X	2/1R	F	P	P	/					

ORIGINAL PAGE IS  
OF POOR QUALITY